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PREFACE.

It is always gratifying to find the opinions one has independently formed, and steadfastly adhered to, in the face of the nearly general dissent of our contemporaries, gradually accepted and adopted as established truths by all those best qualified to judge.

It is particularly gratifying to the Editor (who was not a little abused for starting STRAY FEATHERS,) to find now ere the completion of the 4th Vol. an almost universal concurrence as to the necessity of a special ornithological journal for India, and a pretty general admission that despite his own shortcomings, his journal has, thanks to the kind and cordial support of brother ornithologists, rendered important services to Indian Ornithology.

As regards his own shortcomings, the Editor feels that on the present occasion, he has more cause even than in former years to deprecate harsh judgments.

From circumstances entirely beyond his own control, the Editor has been this year compelled to bring out the whole volume in only two numbers, the first of which appeared in January, and the 2nd of which will appear in December.

This he feels is, in truth, a very irregular manner of doing business; all he can plead in mitigation of sentence is that as a fully occupied Government servant, liable to be sent here, there, and everywhere as the exigencies of the public service may demand, and often unable for whole months at a time to look at, or give a thought to, birds, he does his best and can do no more.

No one else can at present be found able and willing to undertake the task; the mere preparation of contributions for the press, correction of proofs, and compilation of indices, involves, in India, an amount of personal labour, of which European Editors have no conception, and when this is coupled with the facts that the press is at Calcutta, that the Editor may, as has happened this year, send a manuscript from Simla, receive a first proof there, a second proof at Jeypoor, and pass the final proof for press at Bombay, and that, again, as has happened this year, large packets of manuscript and proofs disappear altogether in the Post Office, never turning up at the stations where the Editor expected to meet them, indulgent readers will, it is hoped, make allowances for the irregularity with which the journal appears,—an irregularity, be it noted, which was foretold in the opening notice on the cover of the very first number.

Au reste the Editor has only to urge once more the great importance of carefully prepared local Avi-faunas and to express a hope that he may soon be favoured with some at least of those which have been now long promised.

ALLAN HUME.

November 25th, 1876.

STRAY FEATHERS.

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Notes on some Birds collected in Sambalpur and Orissa.

By V. Ball, M.A., F.G.S.
Geological Survey of India.

In the present paper I only purpose to enumerate species which are either not included in my account of the avi-fauna of Chota Nagpur,* or which, if included, are noted as being rare in that part of the country.

Already in my paper of *Addenda*† I have mentioned the occurrence of a few birds in Sambalpur which come under one or other of these heads. The species so indicated were respectively—

1. *Otus brachyotus*, Gmel.; *Bulacca ocellata*, Less.; and *Chætornis striatus*, Jerd. 2 *Acanthylis sylvatica*, Tick.; *Pericrocotus erythropygius*, Jerd.; *Chibia hottentota*, Linn.; *Muscicapula superciliaris*, Jerd.; and *Esacus recurvirostris*, Cuv.

To avoid confusion the birds from Sambalpur are kept distinct from those of Orissa; for, while the two faunas have much in common, there are also many important differences. In Orissa, at least in those parts influenced by the sea-air, the vegetation is wholly different from that of the jungles of Sambalpur; and with the change in vegetation appear certain species of birds which do not occur in the more inland district; moreover the long coast face of Orissa yields many marine species which never leave the immediate vicinity of the sea.

Sambalpur.

115.—Harpactes fasciatus, *Gmel.*

For several years I have kept steadily in view the desirability of obtaining some confirmatory evidence of the occurrence of the Malabar Trogon in the jungles of the south-west frontier of Bengal and adjoining portions of the Central Provinces. Tickell's single specimen (a female) from Dampura in

* S. F., Vol. II., pp. 355—440.
† S. F., Vol. III., pp. 288—294.

Dholbhum having been the only recorded example from these jungles.

In January of the present year, when encamped at the village of Nakrideol in Rehrakole (a native state belonging to Sambalpur) I saw and shot my first specimen. The locality was an ancient mango-grove, with a copious undergrowth in which I also obtained several other interesting and rare birds.

The bird in question suddenly rose *from the ground* in front of me and perched on a low branch. Seeing it was not a *Taccocua*, as I at the first glance supposed it to be, I was fairly puzzled as to its identity until I shot it, when I was rejoiced to find that it was a female Trogon. Nearly three months later, when returning through the same part of the country, I saw another female in the fine forest jungle to the west of Rampur (the chief town of Rehrakole). This I did not shoot, as it kept flitting from tree to tree in front of me, out of range, finally disappearing.

My specimen contained a caterpillar, besides insects in its stomach, so that the species probably does not exclusively feed on the wing as is generally stated to be the case.

The measurements taken in the flesh are:—

Length, 11″·5; expanse, 13″·25; wing, 5″·; tail, 7″·; tarsus, 0″·6; bill from gape, 1″·.

246.—Salpornis spilonota, *Frankl.*

I saw and shot only two specimens of the Spotted Grey Creeper in Sambalpur. It is probably quite as rare there as it is in Chota Nagpur.

I shot them early in March on the south bank of the Mahanadi, close to the village of Kurumkel, 22 miles north-west of Sambalpur town.

273.—Pericrocotus brevirostris, *Vigors.*

Together with a good series of *P. speciosus* which I recently collected in Sambalpur and the Tributary States of Orissa, I have three males of *P. brevirostris* from the former locality. They were all shot in February within six days of one another, and therefore in the same tract of country—the valley of the Ebe, about twenty miles north of the station of Sambalpur. Though I continued to meet with *P. speciosus* up till May, I did not see *P. brevirostris* again after the above given date. It is therefore most probable that it is only a cold-weather visitant to Sambalpur. In going to and fro it may very possibly pass through Lower Bengal, and the statement by Dr. Jerdon that it is a visitor there, though attributed by Mr. Blyth to a slip of the pen, is not improbably correct.

Although stated by Captain Beavan to occur in Manbhum, I did not insert it in my list of Chota Nagpur birds, as I might doubtless have done with perfect safety.

284.—Dissemurus malabaroides, *Hodgs.*

The large Racket-tailed Drongo or Bhimraj occurs very abundantly in Sambalpur and Western Orissa, though it is so rare further north in Chota Nagpur.

As much interest attaches to the subject of the distribution of the different races of this bird, I give a series of measurements from some of my specimens :—

		Length.	Wing.	Tail.		Bill from gape.	Tarse.	Frontal crest.
Rehrakole	♂ ...	22″·	7″·	7″·	+9″·	1″·5	1″·2	2″·1
Sambalpur	♂ ...	19″·5	6″·25	6″·	+6″·5	1″·75	1″·1	2″·1
Ungul	♂ ...	18″·4	6″·25	6″·	+6″·4	1″·5	1″·1	1″·5
Talchir	♂ ...	18″·2	6″·5	6″·3	+6″·	1″·7	1″·1	1″·7
Ungul	♀ ...	20″·2	6″·25	6″·1	+7″·9	1″·6	1″·1	2″·0
Rehrakole	♀ ...	20″·15	6″·5	6″·6	+7″·55	1″·5	1″·1	1″·5
,,	♀ ...	16″·3	6″·	6″·	+4″·6	1″·5	1″·	1″·3
,,	♀ ...	16″·8	6″·	6″·25	+4″·8	1″·5	1″·	1″·6

In the two last, the shaft of the outer tail feathers is narrowly barbed throughout the portion which is usually bare. They were shot in January, and are probably birds of the previous season.

It will be observed that the dimensions, though variable between individuals, do not appear to be influenced in any marked degree by sex.

440.—Megalurus palustris, *Horsf.*

Within the limits of the Sambalpur district, the Striated Marsh-bubbler is by no means uncommon; but it is, so far as my observation has gone, exclusively confined to the Tamarix-clad islets in the bed of the Mahanadi river. Towards evening numbers may, in some places, be seen hovering over the bushes, or seated on the exposed sprays and twigs. The vigorous chattering note of this bird can scarcely fail to attract notice.

The feet and claws are, for the size of the bird, singularly powerful and raptorial-like. A wounded bird used his sharp claws with considerable effect and much in the same way that a Kestrel would have done under the same circumstances.

512.—Calliope kamtschatkensis, *Gmel.*

I shot one specimen, a female, of the common ruby throat, in the Ebe river in Sambalpur. *Cyanecula suecica*, though rare in Chota Nagpur, is common in Sambalpur. I obtained it both in the beds of the rivers and in paddy-fields.

538.—Prinia Hodgsoni, *Blyth.*

A specimen of *Prinia* agrees perfectly with examples from Darjiling, these latter are I believe admitted to be identical with *Hodgsoni*, Blyth. In order to make sure, however, I have examined Blyth's type. This, like so many other specimens of the old A. S. collection, has plumage of the regular museum hue, and the specimen being otherwise damaged (bill broken), is of but little use for purposes of comparison. However I believe that the above identification is correct.

539.—Cisticola schænicola, *Bonap.*

The Rufous Grass Warbler occurs occasionally in suitable localities in Sambalpur. I never shot it in, nor is it recorded from, Chota Nagpur.* One measured in the flesh:—

♂ length, 4″·6; extent, 5″·5; wing, 1″·8; tail, 1″·4; tarse, 7″·5.

836.—Eupodotis Edwardsii, *Gray.*

To Captain Bowie, Deputy Commissioner of Sambalpur, I am indebted for a specimen of the Indian Bustard. It was one of a pair which he came across near Burga in the Sambalpur district. So far as I could ascertain, this is the only instance of the bird being seen in Sambalpur, but in the adjoining district of Raipur, it is said to be occasionally met with.

On the authority of Captain Bowie I add that the Florican, which was only once met with by me in Chota Nagpur, occasionally occurs in Sambalpur where several have been shot.

Two birds—which are included in my *Addenda*, but which are decidedly rare in Chota Nagpur, I have since frequently met with in Sambalpur and the western parts of Orissa. They are *Hoplopterus ventralis* and *Esacus recurvirostris*. The latter is particularly abundant in the Brahmini river in Orissa.

910.—Porzana pygmæa, *Naum.*

I shot one specimen of the pigmy Rail in Sambalpur. So far as I can remember, I have never seen the bird but once before, that being in a jheel at the north-east corner of the Rajmehal hills.

938.—Sternula minuta, *Linn.*

The little Tern occurs in the Mahanadi river, not only in the vicinity of Cuttack, but also some distance up beyond Sambalpur. The furthest point at which I shot it was near Padampur—about 200 miles, in a direct line from the sea.

* Since the above was written, I have received a specimen from Chota Nagpur.

The following birds were met with only in Orissa, and so far as my observation has gone, do not extend *into Sambalpur* :—

ORISSA.

208.—Ololygon passerinus, *Vahl.*

The Indian Plaintive Cuckoo not improbably extends into Sambalpur,* as I have found it in Chota Nagpur, where, however, it is excessively rare.

I got one specimen not far from Cuttack. The bird was in full adult plumage, and I was struck with the general resemblance it presents to *Volvocivora melaschistos*—just as *Surniculus dicruroides* resembles, so far as plumage goes, *Buchanga albirictus*. From Mr. Hume's Nests and Eggs it would appear that there are no recorded cases of the eggs of either species being found in the nests of the species they respectively resemble; but what can be more likely, than that this imitation subserves the purpose of fascilitating the birds in their endeavours to lay their eggs in the nests of the species they so resemble.

452.—Ixos luteolus, *Less.*

The White-browed Bulbul is very abundant in Orissa throughout a broad zone in which the vegetation is characterized by certain species of plants which are not met with further west. These are for the most part thorny shrubs, which often form an absolutely impenetrable thicket. These thickets abound in the above species, together with *Otocompsa emeria*. *Zanclostomus sp.* (?) is occasionally seen, and of course many other birds. Jungle, Pea, and Spurfowl are common in this cover, where it is extremely difficult to shoot them.

The zone extends westwards as far as Ungul and so far is the White-browed Bulbul to be found, but not beyond. So defined is its limit here that I think it probable that I was in error in inserting it in the Chota Nagpur list, since Colonel Tickell's specimen was obtained in Midnapur, and it is possible that the species does not extend so far west as Manbhum.

695.—Ploceus manyar, *Horsf.*

The Striated Weaver bird was very common in the vicinity of the Mahanadi above Cuttack during last April. Whether it is a permanent resident or not I cannot say. Flocks numbering several thousands were several times seen.

Carpophaga ænea, *Linn.*

The Imperial Pigeon is excessively common throughout the hilly jungles of the western states of Orissa. I shot it in

* It is very common in the adjoining district of Raipur, but I do not seem to have received it as yet from Sambalpur.—ED., S. F.

Ungul, Atmalik, Atgurh, Talchir, and Denkenal; but I have never seen it in Sambalpur. This year, when marching from Sambalpur to Cuttack, I met it first in Atmalik in precisely the same spot where I had seen it last year.

I have already mentioned its occurrence in Manbhum and the Rajmehal hills.* It would appear that in so far as Bengal is concerned, the limits of extension of the species towards the west are very clearly defined. The boundary runs west of the Rajmehal hills through Manbhum, and then along the Orissa—Sambalpur frontier. It must I think be south of this line that it penetrates into the southern central jungles of the peninsula. Mr. Blanford does not agree† with Dr. Jerdon's account of the distribution of this bird, and expresses a disbelief in its occurrence in Central or Western India. He thinks it probable that it ranges with *Gallus ferrugineus* and *Rucervus duvaucelii*. He did not obtain it either in the Nerbudda or Taptee valleys, nor did he observe it near Chanda. The most northern point at which he did meet with it was Sironcha, and thence it occurred down the Godavery. It has, however, since Mr. Blanford wrote, been obtained in the Chanda district by Mr. Hughes of the Geological Survey to whom I am indebted for a specimen.

834.—Turnix joudera, *Hodgs.*

I obtained one specimen of this Button Quail in the jungle near the coast at the mouth of the Chandballi river. It was not uncommon there, but nobler game being in the neighbourhood, the Quails were not interfered with. In this specimen the wing measures 3″·4. The coloration is as given in the figure in Gray's Genera.

846.—Cirrepidesmus Geoffroyi, *Wag.*, & 847.—C. mongolicus, *Pall.*

I shot both these species of Sand Plover on the sea-coast at the mouth of the Chandballi river.

848.—Ægialophilus cantianus, *Lath.*

This species occurred in the same locality as the last. *Æ. fluviatilis* was common inland, both in Sambalpur and Orissa.

876.—Terekia cinerea, *Gmel.*

I shot one specimen of the Avoset Sandpiper also on the sea-coast at the same place. It occurred in small flocks. Unfortunately I did not examine the specimen closely at the time and omitted to obtain other examples.

Measurements of skin:—

♂ wing, 4″·9; tail, 2″·2; tarse, 1″·1; bill at front, 2″.

* S. F., Vol II., p. 424.
† J. A. S. B., 1869, Pt. II., p. 188.

Though shot in May, the plumage of this specimen shews no approach to the described summer plumage.

939.—Platalea leucorodia, *Linn.*

I saw a small party of Spoonbills in the Mahanadi close to Cuttack. One of these which I shot has the outer webs of the first two primaries mottled with greyish-black, and all the primaries tipped with the same color.

983.—Gelochelidon anglicus, *Mont.*

At Chandballi I shot a specimen of the Gull-billed Tern in May. It has a peculiarly lazy flight. Dr. Jerdon speaks of the species as being exceedingly abundant over all India. Such is not my experience, as I have never met it in any of the inland districts with which I am familiar.*

995.—Rhyncops albicollis, *Swains.*

I came across a large flock consisting of Skimmers and Terns (*Seena aurantia*) in the Mahanadi near Cuttack. I managed to obtain half a dozen specimens of the former, but was struck with the difference in the actions of the two species. While the Terns attracted rather than frightened by my shots, flew in swarms over and close to my head, the Skimmers, for the most part, kept out of range. However, by waiting patiently for chances, and leaving the Terns to their diversions, I got the number I wanted. I previously met this species in the Ganges near Rajmehal.

Note on the Synonymy of Spizalauda.

By W. T. Blanford.

Owing to the length of time during which the types of the species of birds described in 1832 by Colonel Sykes have remained inaccessible, doubts have arisen as to which of the two kinds of Lark referred by different naturalists to *Alauda deva* was correctly identified. As was indicated by Dr. Jerdon, but first, so far as I know, clearly pointed out by Mr. Hume, these two forms, which have long been referred to different genera, are in reality closely allied: they resemble each other in plumage, in the form of the wing and of the crest, and in having the hind claw only moderately lengthened, whilst they are distinguished by difference in size, and slightly in coloration. The larger of these is the bird ultimately identified by Jerdon and Blyth with *Alauda malabarica* of

* It is certainly common about all large jheels wherever I have been in the plains country. It is of course rare in dry upland hilly tracts.—Ed., S. F.

Scopoli, the smaller is the *Spizalauda deva* of Jerdon's Birds of India, previously described by him as *Mirafra Hayi*.

The name *Alauda malabarica* of Scopoli was given to the Crested Lark of the Malabar Coast (alouette huppée de la côte de Malabar), figured and described by Sonnerat in his "Voyage aux Indes Orientales et à la Chine." The same figure and description were the origin of Latham's Malabar Lark and Gmelin's *Alauda malabarica*. Sonnerat describes his bird as five inches nine lines (French) long, and with a wing measuring three inches and four lines (the corresponding English measures being 6 and 3·55 inches), and gives the following account of the plumage:—"The feathers on the top of the head are long and form a crest which the bird can raise at will; they are brown, terminated by a white band; the feathers of the neck light rufous, marked with a longitudinal black band which is broader below; the throat and abdomen are of a rufous white; the feathers of the back and the small wing feathers (*i.e.* the coverts) brown, terminated by a very light rufous border; at the extremity of each feather is a white spot; the large wing feathers (quills) and those of the tail earthy brown, terminated by a rufous edge; beak black; feet reddish."

The white edges to the crest feathers, and the white spots on the mantle, are probably signs of immaturity, and the figure represents, I think, a young bird. With these exceptions it agrees in every respect with *Spizalauda:* it has the characteristic pointed crest, and a short hind claw. The dimensions would correspond with either form; for, as will be seen, the male of the smaller kind is sometimes as large as the female of the larger. I believe, however, that the larger form is that found on the Malabar Coast, and consequently that Sonnerat's figure and description must have been taken from it.

Mr. Blyth appears originally* to have identified with Sonnerat's Lark the rufous variety of the Indian Sky Lark, which is so common on the Nilgiri hills, and which, after passing through the hands of half the ornithologists who have lived in India, has at last found one in the person of Mr. Brooks sufficiently bold to name it, although it is much to be regretted that the appellation selected is not very appropriate. This form also appears, to judge by the synonymy in Jerdon's Birds of India, to be the *A. malabarica* of Blyth's catalogue, with which *A. deva*, Sykes, is identified. Subsequently in 1860, J. A. S. B., XXIX., p. 96, Mr Blyth mentions having recently seen the true *A. malabarica*, and it is to be presumed that the specimens to which he refers are those now preserved under that name

* In his Synopsis of Indian *Fringillidæ*, J. A. S. B., XIII., p. 962.

in the Asiatic Society's collection. The identification agrees with that finally adopted by Jerdon, who, in his first catalogue of the Birds of Southern India, omitted *Alauda malabarica* altogether, though in his second supplement to the same catalogue (Madras Journal, 1844, XIII., p. 136), he identified with it his *Mirafra affinis*, a very different species. In his Birds of India, he gives a rather imperfect account of the Malabar Lark, without measurements, but states that it is closely allied to *Spizalauda deva*.

In 1867 I procured at Khandalla, the spot where the railway from Bombay to Poona reaches the top of the Western Ghâts, several specimens of a Lark which I failed in identifying satisfactorily until I shewed it to Dr. Jerdon, who immediately recognised it as his *Alauda malabarica*, and I gave a full description of it under that name in the Journal of the Asiatic Society for 1869. At the same time I doubted its being the same as Sonnerat's species. Further consideration and comparison has induced me to coincide in Dr. Jerdon's opinion, which has been generally accepted.

The history of the smaller form of *Spizalauda*, described by Sykes as *Alauda deva*, is equally confusing. Jerdon in his catalogue identified with it a form of *Galerita cristata*, and Blyth, as we have seen, considered Sykes' bird the same as his (wrongly identified) *Alauda malabarica*. But subsequently Jerdon obtained a small Lark which he named *Mirafra Hayi*, and which was described by Blyth in his Synopsis of Indian *Fringillidæ* (J. A. S. B., XIII., p. 959), and included in the second supplement to Jerdon's catalogue. The types originally described by Blyth are in the Asiatic Society's collection, now made over to the Indian Museum, and I have compared them with the smaller *Spizalauda*. Jerdon, in his Birds of India, correctly identified his *Mirafra Hayi* with Sykes' species. Blyth in 1855 (J. A. S. B., XXIV., p. 258, note) founded the genus *Spizalauda* on *Mirafra Hayi*.

In 1870 Mr. Hume, in his notes upon my paper in the Journal of the Asiatic Society, expressed his opinion that the bird identified by Jerdon, and described by myself as *Alauda malabarica*, was the true *Alauda deva* of Sykes, although he acknowledged that the measurements given by Jerdon were too small. He referred (as Blyth once did) the Nilgiri form of *A. gulgula* to *A. malabarica*,* and proposed the new name of *Spizalauda similima* for the smaller form of *Spizalauda*. This name could not stand in any case even if the true *Alauda deva* had proved to be the larger species, because the types of *Mirafra Hayi*, preserved in Calcutta, shew that Jerdon had previously named the same form.

* *Apud* Jerdon.

I adopted Mr. Hume's view of the identity of *A. deva* with the larger *Spizalauda* in some notes published in the *Ibis* for 1873. I was in England at the time, but owing to the extreme care which was then taken of the natural history collections belonging to the old East India Company by the India Office officials, all the types of Sykes were packed away in a warehouse and preserved from the outer world. However, I looked forward to an opportunity for a direct comparison. Last year, as all the world knows, the big bazar at South Kensington having come to the end of its resources, and being very hard up for specimens of some kind to fill its empty galleries, took compassion on the imprisoned Indian Museum collections. At the same time I received from Mr. Fairbank specimens of both forms of *Spizalauda*, the larger from Mahableshwar, the smaller from near Ahmednagar. I sent skins of both to Mr. Dresser, and Indian ornithologists are indebted to this gentleman for settling this vexed question by comparing the birds with Sykes' types. Mr. Dresser writes to me that the smaller form is unmistakably Sykes' species, thus confirming Jerdon's nomenclature.

I give the corrected synonymy of the two birds below. I must say that I much doubt whether the section to which they belong really deserves generic separation from *Alauda*. Its seems to me that these birds scarcely differ sufficiently from the Skylarks either in structure or habits to justify more than sub-generic distinction. I have never had an opportunity of observing either species in the breeding season, but Mr. Fairbank writes to me that the smaller form, the true *Alauda deva*, rises into the air singing precisely like a Skylark, and although we are assured on equally good authority (Nests and Eggs, p. 483) that *A. malabarica* does not sing when flying, it is impossible to place two birds so closely allied in different genera, and it is the smaller form, *A. deva*, which is the type of *Spizalauda*.

1. ALAUDA (*Spizalauda*) DEVA.

Alauda deva, Sykes, P. Z. S., 1832, p. 92.

Mirafra Hayi, Jerdon, Blyth, J. A. S. B., XIII, 1844, p. 959; Jerdon, 2nd Supp. Cat. No. 188 *bis*, Mad. Jour., XIII, p. 136.

Spizalauda Hayi, Blyth, J. A. S. B., XXIV,* 1855, p. 258, note.

Spizalauda deva, Jerdon, Birds of India, II, p. 432.

Alauda (*Spizalauda*) *deva*, Gray, Hand List, II, p. 118, No. 7761.

* Misquoted XIV in Jerdon's birds, a misquotation which cost me more than an hour's work to rectify.

Spizalauda simillima, Hume, J. A. S. B., 1870, XXXIX, pt. 2, p. 120; Stray Feathers, I, p. 389; Nests and Eggs, p. 484.

This species appears to have a wide range in India, being found according to Hume, Jerdon, and other observers, in the Punjab, N. W. Provinces, Oudh, Behar, parts of the Central Provinces, and throughout the greater portion of the peninsula, keeping mainly to the drier parts, and being more common on the plateau than near the coast. It is not known to occur in Lower Bengal, or in the dry desert parts of Western India. It ranges, however, to the extreme south of India, and should not therefore I think be called the "*northern* crown-crest." The term "crown-crest" is a very good one.

As compared with the next species this bird is smaller, rather paler and greyer in colour above, and in general, I think, much less spotted on the breast, whilst the crest is longer. A male measures:—Wing, 3″·52; tail, 2″·1; tarsus, 0″·8; hind toe and claw, 0″·67; culmen, 0″·67; bill at front, 0″·48, and the length is recorded by Mr. Fairbank as 6 inches.* A female has:—Wing, 3″·2; tail, 1″·9; tarsus, 0″·8; hind toe and claw, 0″·7; culmen, 0″·65; bill at front, 0″·48; length (recorded) 5″·6. The measurement of the female agrees well with the dimensions (all of females) given by Mr. Hume for *S. simillima*.

2. A. (*Spizalauda*) MALABARICA.

L'Alouette huppée de la côte de Malabar, Sonnerat, Voyage aux Indes Orientales, IV, p. 266, pl. 111, fig. 1 (edition of 1806.)†

Alauda malabarica, Scopoli, Deliciæ faunæ et floræ insubricæ.‡

Malabar lark, Latham, Gen Syn. II, pt. 2, p. 379.

Alauda malabarica, Gmel. Syst. Nat. I, pt. 2, p. 795; Blyth, J. A. S. B., XXIX, 1860, p. 96; Jerdon, Birds of India, No. 768, II, p. 436; W. Blanf., J. A. S. B., 1869, XXXVIII, pt. 2, p. 183; Gray, Hand List, II, p. 117, No. 7748; Brooks, Stray Feathers, I, p. 486.

Spizalauda deva, Hume, J. A. S. B., 1870, XXXIX, pt. 2, p. 119.

Spizalauda malabarica, Hume, S. F., I., p. 389 note, and 486 note; W. Blanf., Ibis, 1873, p. 222;? Hayes Lloyd, *ib.*, p. 414; Hume, Nests and Eggs, p. 483.

Found in many parts of Southern India, especially near the western coast, on the range of the Western Ghâts, keeping

* This appears to be a rather large specimen. In another male in the Indian Museum the wing is 3″·45.

† There was an earlier edition of this book, which was that quoted by Latham and Gmelin. Possibly in that edition the plate is 113, as quoted by most authors. The later edition is alone available in Calcutta.

‡ I have not access to this work at present. To the best of my recollection *Alauda malabarica* is stated in it to have been brought from China!

chiefly to the damper parts of the country. If the species recorded, by Hayes Lloyd is the same and not *S. deva*, this bird is also found in Kathiawar.

It is darker in plumage, more rufous above, and whiter beneath, and has larger and more numerous breast spots than *A. deva*. The crest is rather shorter, whilst all the dimensions are larger. A male measures :—Wing, 3″·8 ; tail, 2″·15 ; tarsus, 0″·95 ; hind toe and claw, 0″·8 ; culmen, 0″·72 ; bill at front, 0″·6. Wing in a female, according to Mr. Hume, measures 3″·6.

Notes on and Additions to Ceylonese Avi-fauna, with a Notice of some apparently new Species.

By Captain W. V. Legge.

78.—Glaucidium malabaricum, *Blyth.*

An Owl, which I conclude is this species, has for many years baffled my pursuit, although he constantly put me on his track by his extraordinary shouts uttered always in broad day light and at all times of the day. I contrived, however, to secure him some months ago in the Eastern Province. This makes an interesting addition to our list of Raptors. It inhabits the hill forests of all the south-west, the jungles of the south-east, and eastern districts and those of the Uva and Central Ranges.

181.—Brachypternus intermedius, *N. Sp.**

Dimensions, male and female:—Length, 10″·5 to 10″·75 ; wing, 5″·2 to 5″·4 ; tail, 3″·5 ; outer anterior toe, 0″·75 ; its claw straight, 0″·45 ; versatile toe, 0″·65 ; its claw straight, 0″·34 ; bill to gape, 1″·5 to 1″·6.

Soft parts, male.—Iris crimson ; bill blackish slaty, pale at the base ; legs and feet dusky greenish or pale olivaceous.

The head and the white facial-and-neck-stripes as in *puncticollis*, with the ear coverts blacker or less marked with white than in that species ; the hind neck, rump, tail, anterior part of wing, and the same part of the scapulars, similarly colored black ; back and scapulars orange, overlaid or washed with crimson ; the basal and central parts of the feathers being brownish orange, changing into crimson at the tips ; wing coverts and outer webs of secondaries and tertials reddish orange, the edges being brightest ; the margins of

* I cannot see how this supposed new species differs from many specimens of *puncticollis* (*chrysonotus* apud *Jerd.*), which is very variable in the points on which Captain Legge dwells.—Ed., S. F.

the greater wing coverts are crimson like the scapulars, and the outer secondary wing coverts are spotted with reddish white and whitish as in *puncticollis;* primaries as in that species; throat spotted or barred with white, the black portions of the feathers limited, in old specimens, to marginal spots; chest and lower part of throat black, striated with white, very boldly on the chest, the whole of the centres being white with parallel black margins to the feathers; these diminish on the breast, leaving the lower parts merely dark-edged, and as white in appearance as *aurantius*. Under-tail coverts barred or centred and edged with black.

Female.—Iris red or duller than that of the male. The crimson of the occipital crest is not so brilliant, and the back and scapulars are orange, slightly washed with crimson; the outer webs of secondaries and tertials and the wing coverts brownish orange. Some specimens (and I think this is the normal phase of the female plumage) have no crimson whatever, on the back, this and the wings being pure orange. An immature example (having, as is the case with nonage in all *Brachypterni*, the markings of the chest *oval)* corresponds in this respect exactly with an old or striated-chested female.

Habitat.—Inhabits the forests of the whole northern part of the island, commencing in the region north of Kurnegalla, and found throughout the great jungle tract as far as Trincomalie and the Ibanni.

In *Coll.* National Museum, Ceylon, and *coll.* W. V. Legge.

257.—Lanius erythronotus, *Vigors.*

Differs from its Indian relative, in its smaller size and almost complete absence of rufous on the scapulars, only the terminal portions of the longer, underlying, feathers being thus colored. The rufous of the rump is almost confined to that region, and does not extend up to the centre of the back as in Indian examples. Should this diagnosis be correct, I would propose the name of *L. affinis* for our bird as a sub-species.* The matter of diminutive size, however, is not of any value whatever according to my view, as this feature holds good of almost all Indian forms in Ceylon, and is the result of the warm climate only.

265.—Tephrodornis ponticeriana, *Gmelin.*

Some Ceylon specimens have very large supercillia. This bird was at one time thought to migrate from the Western Province during the S. W. monsoon. This is erroneous; it merely retires from the unsheltered coast region to the interior.

* This is apparently nothing but *L. caniceps*, Blyth.—Ed., S. F.

Oreocincla pectoralis, *N. Sp.**

Dimensions.—Length, 8″·35; wing, 4″·7; tail, 3″·0; tarsus, 1″·1; mid toe and claw, 11″·5; hind toe, 0″·5; claw straight, 0″·35; bill to gape, 1″·15. The bill is long and *turdulus*-like, but not so massive in its conformation as that of *O. nilgherriensis*.

Soft parts.—Iris brown (?); bill dusky; gape and base of lower mandible yellowish; legs and feet dusky yellowish; claws yellowish, with dusky tips. These are the *soft parts* as taken from the dry skin.

Description.—Above deep olivaceous brown, slightly greenish on the rump and upper tail coverts, the lower feathers of which latter are tipped white; on the head and hind neck the feathers are dark shafted, and the brownish olivaceous of the sides of the neck spreads over the chest and lower throat; wings dark brown, the greater coverts and secondaries with their outer webs olivaceous brown, and the coverts with an angular terminal

* I cannot at all make out this species; it might possibly I thought be *O. Gregoriana*, Nevil, but the bill in that is decidedly more massive, though shorter than in that of *O. nilgherriensis*, which latter in its bill at any rate shows a strong affinity to *Zoothera*. I have referred to *O. Gregoriana* before Vol. I, p. 437, but I do not know that any full description of it has yet been published, and I therefore subjoin one:—Length, 9″; wing, 5″; tail, 2·″3; tarsus, 1·″1; bill from forehead to point, 0·″95; from gape, 1·″35.

The whole top and back of the head, back of the neck, back rump, and upper tail coverts a very rich olive brown, with a distinct rufescent tinge, feeblest on the rump and upper tail coverts, all the feathers pale shafted, and each of them with a conspicuous black tipping or terminal bar, the bars being so close together on the head that the black there predominates.

The lores, cheeks, ear coverts, chin, throat, sides of the neck fulvous, the feathers of the cheeks, ear coverts, and side of the neck with black terminal spots, and a few faint traces of similar spots on the throat; a narrow conspicuous black collar divides off the chin and throat from the breast; breast and entire lower parts a very rich warm buff, all the feathers except those of the lower tail coverts, with a conspicuous black margin; those of the sides of the breast somewhat shaded with olive.

The wings a very deep brown; the quills tinged with rusty olive on their outer webs, the primary greater coverts tipped with blackish brown and with a broad sub-terminal rufous buff band; the rest of the greater and the median coverts tipped with this very same rufous buff, which in the case of the median coverts run somewhat up the shafts. The lesser coverts suffused at the tips with reddish olivaceous and with rufous buff shafts.

The four central tail feathers, and the exterior pair on either side plain olive brown; the rest of the feathers blackish brown, more or less tipped paler.

All over the back the bases of the feathers, where they show through, are less rufescent than the tips immediately preceding the black tipping, so as to produce the effect of a second rufescent band inside the black tipping.

This is a very distinct species sent to me by Mr. Nevil as *O. Gregoriana*, Nevil, of Ceylon, but I see from the ticket that it was obtained from Messrs White & Co., of Kandy, and there is therefore I fear no guarantee any more than in the case of *Batrachostomus punctatus* that the specimen ever really was procured in Ceylon. To me the bird seems like a small very rufescent edition of *Oreocincla malayanus*, Sund. (*varius apud* Horsf). I note especially in the axilla the brush of silky white feathers, broadly tipped with black, which is noticed by Horsfield as a characteristic of the Javan bird.

I have to add that I have now strong doubts whether the *Phodilus badius*, also sent me by Mr. Nevil as killed in Ceylon, but which likewise was procured from Messrs. White & Co., was ever killed there at all. I must leave it to Captain Legge to try and get the truth about these skins out of Messrs. White & Co.—Ed., S. F.

whitish spot, above which the inner webs are blackish; first 3 primaries with a pale fulvous edge, the remainder with rusty brown margins; uropygials rusty brown, the remaining rectrices dark brown, with white tips to the three outer pairs running up the inner webs considerably; lores blackish, surmounted by a conspicuous fulvescent supercillium; chin and throat fulvescent white, with two mandibular stripes joining the dark line of the chest; feathers of the chest and lower part of fore-neck, with broad white centres, surrounded by blackish margins; breast, belly, and lower tail coverts crossed, except down the centre, with blackish terminal bars; upper flanks banded with the same on a duskier ground; lower flanks washed with olivaceous and barred with paler marks than the upper; lower tail coverts margined with brownish.

Described from a single specimen shot by Mr. Thwaites, the curator of the cinchona gardens at Hakgalla. This is at an elevation of 6,000 feet, and forms part of the great central forest-clad mountain range of the hill zone. The specimen is carbolised, and the sex, therefore, undetermined. In *Col.* W. W. Legge.

404 *bis*.—Pomatorhinus melanurus, *Blyth*.

The rufous hue of the back of low country specimens contrasted with the olivaceous tint of hill birds is I think due to the operation of climate. It is common to Western Province, Southern District, and Northern birds. Examples from the neighbourhood of Trincomalie are counterparts of Galle specimens. Mr. Holdsworth was of opinion that the difference was marked enough to warrant specific separation of the hill and low country birds. I hope to get a series of intermediate altitude specimens, and then the question may perhaps be decided.

454.—Kelaartia pencillata, *Blyth*.

Have any more examples of this species come to hand in South India?* It is unsatisfactory to assign it a place in the continental list merely on the *supposition* of its occurrence in Mysore by the late Dr. Jerdon.

844.—Squatarola helvetica, *Gmelin*.

This Plover must now be added to the Ceylon lists, a specimen having been procured by me in March near Manaar. I saw them on two occasions, and am informed by a gentleman who has

* I have as yet no record of its occurrence there.—Ed., S. F.

collected in the Jaffna district that they are not uncommon there.

861.—Dromas ardeola, *Payk.*

Literally hundreds of these usually rare species crowded the great tidal flats to the north of Manaar, but, having to hurry my canoe on to save the tide, I could do no more than have a passing stalk, at some little groups, which of course failed.

862.—Hæmatopus ostrealegus, *Linn.*

I met with this rare and wary bird on several occasions during my late trip to Jaffna, and succeeded in knocking over a fine immature bird, with white throat at the small span of 90 yards! I know of no other example actually procured in the island.

985 *bis.*—Sterna Dougalli, *Montague.*

The Terns noticed in "STRAY FEATHERS," Vol. III., p. 376, were correctly identified as belonging to the above, and not to *Sterna paradisea*, Bonn,* which is the Arctic Tern. Mr. Saunders has since determined that the birds procured at the Andamans belonged to the latter species. It is a mystery where all the flocks, I saw, departed to, they began to pair rapidly at the beginning of June, and disappeared altogether in about a fortnight after that.

988 *ter.*—Sternula sinensis, *Gmelin.* (*S. placens*, Gould)

This is the common little Tern of Ceylon and ranges I believe by Java and Sumatra to the seas of the north coast of Australia.

* Some confusion exists here. In the first place *S. paradisea*, Brün. not Bonn is probably intended. In the second place our Andaman Terns are by no means the Arctic Tern.

I think the explanation is this; *Sterna paradisea*, Brünn, Orn. Bor. 42 (1746,) is by some ornithologists still considered to refer to the same species as Montague's *S. Dougalli*. Orn. Dict. suppl. (1813). Others and probably the majority of modern ornithologists hold that Brünnich's name is applicable to the Arctic Tern, now usually accepted as *S. hirundo*, Lin, with *macrura*, Naum, and *arctica*, Tem, as Synonymes. When Lord Walden reported, *Ibis*, 1874, p. 149, that Mr. Howard Saunders had identified the Andaman Terns with *S. paradisea*, Brünn, he unquestionably used the name as I did (S. F., II. p. 501) as equivalent to *S. Dougalli*, and not in its more modern acceptation of the Arctic Tern. Lord Walden's remarks "lower surface deeply suffused with a rosy salmon tint" sufficiently dispose of this question. Perhaps Lord Walden does not concur in the more modern acceptation; very likely at the the time he wrote, Mr. Saunders had not yet made up his mind on the subject; but be this as it may, the fact remains that the Andaman specimens referred to by both Lord Walden and myself *(loc. cit)* were (if not *gracilis* Gould, and for this Mr. Saunders is responsible) the Roseate and *not* the Arctic Tern, *i.e.* the same species as occurs in Ceylon.—ED., S. F.

It is a larger* bird than *minuta*, has the bill bright yellow, and generally with a sharply defined black tip, at the breeding season. It breeds at Hambantotta (P. L. Z., 1875, p. 377) and at Kandelay and Minery Tanks in the northern half of the island.

993.—Anous stolidus, *Linn.*

An example, apparently, of this noddy was procured out of three at the Galle face beach in June. Wing, 10″·9; bill at front, 2″·1.† The forehead and front of vertex were white passing into greyish on the crown, throat slightly pervaded with grey. The above measurements correspond with those of Pacific birds, although they do not equal those given by Jerdon.

A most interesting addition to the avi-fauna of Ceylon—a fine number of the genus *Baza* has of late been procured in the island. As it has been passed over all these years, it is doubtless a rare species, and its capture now is probably owing to the increased interest taken in bird collecting by the planters in Central Province. To this cause is also due the shooting during the last two years, of a number of examples of the magnificent *Spizaetus nipalensis*, as also the capture of a fine specimen of *Nisaetus pennatus*. Our new *Baza* of which I have two specimens, as far as I can judge from the material at hand, comes between *B. magnirostris* from the Phillipines and *B. sumatrensis* from Sumatra, approaching the former in size, but differing in the crest and closely resembling (in what is stated to be the young plumage) the latter species, from which, however, it differs in its smaller dimensions. The following are measurements and description of my bird :—

Baza ceylonensis, *N. Sp.*‡

Dimensions.—Length to front of cere (from skin) 16″·5; culmen 10″=total length, 17″·5; wing, 11″·7; tail, 7″·5; tarsus, 1″·5; mid toe, 1″·35; its claw straight, 0″·65; inner toe, 1″·0; claws straight, 1″·6; bill to gape 1″·2.

* Captain Legge has kindly sent me a specimen. I cannot separate it from European specimens. See further my remarks on this species in my Laccadive paper.—Ed., S. F.

† This must I think certainly be *Anous leucocapillus*, Gould. The bill in no specimen of *stolidus* that I have examined exceeds 1″·8 at front. In Indian specimens of *leucocapillus* it is 2″ to 2″·2. But the wing, 10″·9 seems large for this latter species of which, however, unlike *stolidus*, I have examined but few specimens. See further my note on this species in my Laccadive paper.—Ed., S. F.

‡ If this species is really new, it is one of the most remarkable discoveries of recent times here. A *Baza*, rather a wandering genus, restricted to a small island like Ceylon, and even there of excessive rarity. In very many respects it seems to agree with the *Baza* from Sikhim and Tenasserim, that I was inclined to identify with *sumatrensis*, and that I provisionally distinguished (III, p. 314) as *B incognita*, but it *seems* too small for this, if the primaries are fully developed in the specimen measured by Captain Legge.—Ed., S. F.

Iris, yellow; bill, blackish leaden; lower mandible, palish at base; cere, dusky plumbeous (?); tarsi and feet, yellow; claws, plumbeous.

Lores, blackish; head, brownish tawny; over the centre of the forehead and crown the feathers are black, the rufous colour being confined to the edges; occipital crest (1¾ inches in length) black, conspicuously tipped with white; the feathers of the hind neck deeply edged with rufous tawny, the centre parts being black, which overcomes the pale edges on the lower portion; back, scapulars, rump, upper tail coverts, primary and lesser wing coverts, blackish brown; the latter the deepest and with a cinerious tinge; upper tail coverts, paler than the back; median and greater wing coverts, pale or fulvous brown; quills, black; the outer webs curved by smoking grey bars; the corresponding band on the inner web being brown; tertials and secondaries, tipped with white; tail, dark smoky grey, with greyish white tip, and four blackish bars, the terminal one about 1½ inches in depth; cheeks and ear coverts, slaty grey with dark shafts, the dark feathers of the occiput passing round to meet the latter region; chin and throat buff, with a broad mesial black streak; sides and lower part of fore-neck with the upper edge of pectoral region tawny cinerious, the feathers with brownish shafts; below this the under-surface, under-tail, and under-wing coverts, are white with broad rufescent brown, dark margined brown the chest, flanks, and outer surface of thighs; the under-tail coverts and under-wing, are spotted with pale rufescent; the light portions of quills and tail are white beneath.

A second specimen, probably a female, has the wing 12″. It is not fully mature having some of the scapulars edged white, while the tertials are more deeply tipped than the above.

Some months ago an immature example of a Falcon, which had all the characteristics of this genus came under my notice; the second or anterior tooth was wanting, but notwithstanding it was evidently a *Baza* and I suggested *in epist.* to Mr. Sharpe, that it might be *Baza sumatrensis.* I now am of opinion that it was nothing more than the young of the present species, and probably a female, judging from its length of wing. Its length from the skin was about 17 inches; wing, 12″·25; tail, 8″; tarsus, 1″·15; mid toe and claw, 1″·15; longest-crest feathers, 1″·8.

The crest was very deeply tipped with white and the entire upper surface dark brown, the feathers edged with whitish throughout the tertials and greater wing coverts most conspicuously so; quills, blackish brown, with smoke brown bars, paling

towards the bases of the feathers and whitish at the inner edge; tail, smoke brown, tipped white and with fine blackish bars as in the adult; under-surface, white, the chest with broad mesial stripes, and the breast and flanks widely barred with sienna brown; under-wing coverts with bar-shaped spots of the same.

This specimen has been sent to England by the gentleman with whom I examined it, and will doubtless prove on comparison with my specimens, to belong to the same species. It was shot near Nilambe in the Kandy district last year, and my specimens were both procured at the same time near Matab last month.

31.—Nisætus pennatus, *Gmelin.*

Two examples of this, hitherto, in Ceylon, almost unknown Eagle have been procured this year. The first specimen noticed in the island was shot by Edgar Layard many years ago near St. Pedro and is recorded in his notes, *Am. Nat. His*, 1855, p. 98; our birds have now turned up in widely different localities. The first was shot near Colombo in January last; a fine female in immature plumage and was the first bird, mounted in the new museum. My specimen is an adult male and was killed in the upland of Doombara near Kandy. It has a wing of 15″; the under-surface is almost pure white, the striae are confined to the chest and sides of the breast and the lower flank feathers are slightly barred with sienna brown.

351.—Petrocossyphus cyaneus, *Lin.*

I omitted above to record the occurrence of two examples of this interesting Thrush in the island. They were shot by the same gentleman, Mr. Thos. Fan, in the Central Province; the first in November 1872, the latter in March 1875, both frequenting boulders and rocks beneath precipices.

The second example is now in my collection, and is in the plumage of a young male or in transition from the dress of the female to that of the other sex. The chest is overcast with brownish, and the feathers there tipped with rufous grey, the primary wing coverts and tertials are pale tipped; the breast and under-tail coverts are edged with whitish; becoming somewhat rufescent on the planks; the head and hind neck are brown with bluish bases to the feathers.

This Rock Thrush is most probably an annual visitant to Ceylon but has, in common with other migrants, been passed over until lately.

List of Birds collected in the vicinity of Khandala, Mahabaleshwar, and Belgaw, along the Sahyadri Mountains; and near Ahmednagar in the Dakhan.

By Rev. S. B. Fairbank, M.A.,
Missionary of the A.B.C.F.M.

Reference has often been made in "Stray Feathers" to Khandala and Mahabaleshwar, but no general account has appeared of the birds found at these places or at any other place in the same region. The list now given is necessarily incomplete, because I have not had the opportunity of collecting at any place on the hills, throughout the year. With the exception of a visit to Mahabaleshwar in the cold season, my opportunities have been confined to the hot months of March, April, and May. The avi-fauna varies greatly, from the coming and going of birds, during these three months, and doubtless the same process goes on in other parts of the year. At least, many species of birds may be found in the autumn and winter that have disappeared before the beginning of March. However, an authentic list, though incomplete, is better than none.

My collections have been made principally at Mahabaleshwar; but this year some birds were collected at Khandala, and last year for a few weeks in the Eastern frontier of the Goa and Sawant Wade Territories. These localities are similar to each other, in that they are all on the crest of the Sahyadri mountains, and some forty or fifty miles east from the sea-coast. Khandala is in about 18° 40′ North Latitude. It is somewhat south of east from Bombay, and about forty miles distant, as the crow flies. The village and railway station are 1,970 feet above sea-level.

The adjacent hills are several hundred feet higher. On the Goa frontier there are fewer hills rising above the level of the Dakhan than at Khandala. There the Dakhan plains seem suddenly broken off, and there is a precipitous descent into the Konkan. The hills rise to 4,700 feet at Mahabaleshwar, higher than at any other habitable place north or south of it for two or three hundred miles. The trees are preserved for ten miles around the sanitarium. So the plateau, which may contain ten square miles, is thickly wooded, as are also parts of the adjacent hills and valleys. Other parts are kept mostly bare of trees by the fires that are sure to overrun them every year when the grass is dry. The villagers are full of complaints because the trees are preserved. They would like to pollard the trees yearly and burn the leafy branches on their

fields for rice and *náchní* (*Eleusine coracana*). The ground in most places is rocky, and the soil thin. So that the trees are mostly small and dwarfed. But as a large space is wooded, the fruits, seeds, insects, &c., on which certain kinds of birds feed, are produced abundantly. Of these birds we may mention the Spurfowl (*Galloperdix spadiceus*), the Bulbul (*Otocompsa fuscicaudata*), the Black Bird (*Merula nigropileus*), the Ground Thrush (*Geocichla cyanotus*), the Whistler (*Myiophonus Horsfieldii*), and the Merry Wrenbabblers (*Alcippe poiocephala* and *Pellorneum ruficeps*). These birds have greatly increased in numbers within a few years. The preservation of the trees on this tract has not however increased the number of kinds of birds on the Mahabaleshwar plateau so much as might have been expected. The birds that affect the groves and wooded ravines of the western declivities, and the western base of the hills, are mostly, if not all, found also in similar situations near Khandala, although Khandala is a degree farther north, and seems to have been regarded by Dr. Jerdon as fairly outside of the Malabar region.

The western face of the Sahyadris is very precipitous, and there are belts of bare rock running along almost continuously for hundreds of miles. In some places these are crossed by ravines that are wooded fairly up to the crest of the hills. Other strata of the trap rock, of which these hills are composed, are friable, and in them some trees find congenial soil. So belts of small trees run along the hill sides horizontally at different heights, and both beautify and utilize them. Barbets, Orioles, Woodpeckers, Babblers, Thrushes, Bush-quails, Spurfowls, Green-pigeons, Shrikes, Honeysuckers, Bulbuls, Cuckoos, &c., frequent these belts of trees. Some of them come down from the higher woods, and some come up from the valleys. The birds that belong distinctively to the Malabar region, seem more at home in the wooded valleys which are but little higher than the rest of the Konkan. They sometimes ascend the hill sides for food, but the crest of the hills is a boundary they seldom pass. Some of the Babblers as (*Alcippe poiocephala*, *Pyctorhis sinensis*, and *Dumetia albogularis*,) one of the Barbets, (*Megalaema viridis*,) our Hill Lark (*Alauda malabarica*), and the Ghat Black Bulbul (*Hypsipetes ganeesa*)* live mostly on or near the top of the hills. They are seldom found far down the western slopes, and do not often wander into the dry open plains of the Dakhan. There are limited localities however on and among the spurs which extend from the Sahyadri mountains far into the Dakhan, that are congenial to the birds which frequent the slopes of the Sahyadris, and I have found Magpies (*Dendrocitta rufa*), Sirkeers (*Taccocua affinis*), and Thrushes

(*Orocætes cinclorhynchus*, *Geocichla cyanotus*, and *Pitta coronata*) more than a hundred miles east of their usual haunts.

The list of Konkan birds would doubtless be increased by collecting at Bombay and along the coast. Even in the vicinity of Ahmednagar where I have collected for many years, a bird turns up now and then that had not been obtained before.

It seems best to still adhere to Jerdon's classification and numbers also when the bird is described in his Birds of India, although the time has doubtless come for adopting a more natural classification. It is to be hoped that the next complete work on Indian Ornithology, will give us a classification improved up to the present state of the science.

2.—*Otogyps calvus.*—Throughout the region.

4.—*Gyps indicus.*—Throughout.

5.—*Gyps bengalensis*—Throughout.

6.—*Neophron gingianus.*—Everywhere.

11.—*Falco jugger.*—Common in the Dakhan. Not one seen at Khandala. Obtained one at Parr, six miles west of Mahabaleshwar.

16.—*Chicquera typus.*—More common in the Dakhan, but obtained also at both Khandala and Mahabaleshwar.

17.—*Tinnunculus alaudarius.*—Everywhere in the cold season.

18.—*Erythropus cenchris.*—I obtained a pair in January 1861, near Ahmednagar, out of a flock of perhaps two dozen. They were resting on a small babhul (*Acacia arabica*) tree. The skins were sent to America, and I know not where they may be at present. I have been unable to find them since, and so cannot tell whether the birds were true *E. cenchris*, but they answered well to Jerdon's description.

23.—*Micronisus badius.*—Common. The iris of the adult male is brilliant vermillion red; but that of the female is yellow.

24.—*Accipiter nisus.*—Two specimens that I referred to this species, were obtained on the road between Poona and Mahabaleshwar, but were sent away, and for two years I have not found an individual for more careful examination.

25.—*Accipiter virgatus.*—I obtained by Parr, near Mah'r, birds that I unhesitatingly called *besra*, and distributed to correspondents as such. Afterwards I sent a bird shot in the same locality, but put up, without special examination, to Mr. Hume. He wrote me that it was doubtless a *shikra*. I did not find the *besra* at Khandala, the season for them having past, so I am not able to prove that the birds I obtained at Parr were of this species, or rather that the *besra* inhabits the Bombay region; it is, however, known to inhabit Canara.

29.—*Aquila vindhiana.*—Common throughout our region.

31.—*Hieratus pennatus.*—Not uncommon in the Dakhan. It consorts with *Milvus govinda.*

32.—*Neopus malayensis.*—One shot at Mahabaleshwar. They are rare there.

33.—*Nisætus fasciatus (Bonellii).*—Mahabaleshwar, rare.

34.—*Spizætus limnætus.*—One obtained near Ahmednagar.

35.—*Spizætus cirrhatus.*—Obtained one and observed others on the western slope from Mahabaleshwar.

38.—*Circætus gallicus.*—Often seen on the plains of the Dakhan.

39.—*Spilornis cheela.**—At Khandala, Mahabaleshwar, &c. It attracts attention by its "plaintive wild cry that is heard for two miles and more." It is the most common Eagle along the Sahyadris.

45.—*Buteo ferox.*—Not uncommon in the Dakhan.

48.—*Poliornis teesa* may be found any day in the Dakhan, sitting on the earth heaps that mark boundaries, or skimming along just above the ground from one heap to another.

51.—*Circus Swainsoni.*—Found along the hills, and common in the Dakhan.

52.—*Circus cineraceus.*—Found along the hills, and common in the Dakhan.

54.—*Circus æruginosus.*—Mahabaleshwar and along the hills. Rare in the Dakhan.

55.—*Haliastur indus.*—Found everywhere, but not so plentiful in the Dakhan, as in other parts of India.

56.—*Milvus govinda.*—Very common everywhere.

56 *bis.*—*Milvus major.*—Khandala. Mr. Blanford informed me that he had been assured one of Colonel Sykes' types of *Milvus govinda* is a *M. major.*

57.—*Pernis ptilorhynchus.*—Everywhere. Common in the Dakhan. The coloring of the head and body seems very variable, but when flying all are easily recognized by the two black bands across the tail.

59.—*Elanus melanopterus.*—Rare in the vicinity of Ahmednagar, and not observed on the hills.

60.—*Strix javanica.*—Common in the Dakhan. It nests frequently in holes in the mud walls of the Dakhan villages.

61.—*Strix candida.*—As I have not *collected*, this Owl perhaps it has no business in this list. But I have more than once flushed a Grass Owl that I believe to be this.

63.—*Syrnium indrani.*—Mahabaleshwar.

65.—*Bulaca ocellata.*—Found on its nest in the fork of a mango tree a few miles from Poona.

* ? The smaller Southern race *melanotis*, Jerd., *S. minor*, nobis; ? *albidus*, Cuv.—Ed., S. F.

68.—*Brachyotus accipitrinus.*—Ahmednagar.

69.—*Ascalaphia bengalensis.*—Common in the Dakhan.

72.—*Ketupa ceylonensis.*—Khandala.

74.—*Ephialtes pennatus*, or a nearly allied species, once obtained at Mahabaleshwar.

74 *bis.*—*Ephialtes brucei.*—Rahuri, in the vicinity of Ahmednagar. Only three specimens are known.* A fourth Scops Owl in the rufous stage of plumage, that probably belonged to this species, was obtained in a neighbouring village, but it is not known where the specimen is now.

76.—*Athene brama.*—Common everywhere.

81.—*Ninox hirsutus.*—Several have been obtained in the district of Ahmednagar.

82—*Hirundo rustica.*—Common.

84.—*Hirundo filifera.*—Common in the Dakhan.

85.—*Cecropis erythropygia.*—Common.

86.—*Lagenoplastes fluvicola.*—Near Satara.

89.—*Cotyle sinensis.*—Near Satara.

90.—*Ptyonoprogne concolor.*—Common.

91.—*Ptyonoprogne rupestris.*—Khandala, Mahabaleshwar, &c.

100.—*Cypselus affinis.*—Abundant in and about Ahmednagar. Found at Khandala, &c.

102.—*Cypselus palmarum.*— Vicinity of Ahmednagar.

104.—*Macropteryx coronatus.*—Khandala and along the hills.

107.—*Caprimulgus indicus.*—Ahmednagar, Khandala, &c.

112.—*Caprimulgus asiaticus.*—Common in the Dakhan.

113.—*Caprimulgus mahrattensis.*—Rahuri. It is rare.

114.—*Caprimulgus monticolus.*—Goa frontier.

115.—*Harpactes fasciatus.*—Woods of Sawant Wade, in the Konkan.

117.—*Merops viridis.*—Common.

118.—*Merops philippinus.*—Found once at Ahmednagar, and once at Khandala.

119.—*Merops Swinhoei.*—Sides and base of Goa and Sawant Wade hills.

123.—*Coracias indica.*—Everywhere in the cold season.

127.—*Palargopsis gurial.*—Once found near Mahabaleshwar.

129.—*Halcyon smyrnensis.*—Everywhere.

134.—*Alcedo bengalensis.*—Still more common.

136.—*Ceryle rudis.*—Common.

140.—*Dichoceros cavatus, Shaw.*—Konkan and western slopes near Mahabaleshwar. Goa frontier.

141.—*Hydrocissa coronata.*—Ratnagiri, on the coast south of Bombay.

* Other specimens have been procured elsewhere. Mr. Blanford recently obtained it in Sindh. I should say it never became rufous.—Ed., S. F.

145.—*Tockus griseus.*—Khandala by the reversing station.

148.—*Palæornis torquatus.*—Common.

149.—*Palæornis purpureus.*—Common along the hills. Vists the Dakhan at some seasons in flocks.

151.—*Palæornis columboides.*—Western slopes of the Sahyadris, at least as far north as Khandala.

153.—*Loriculus vernalis.*—Western slopes of the Sahyadris, at least as far north as Khandala.

160.—*Picus mahrattensis.*—Everywhere, but not abundant.

164.—*Yungpicus Hardwickii.*—Goa forests. Mr. Bruce obtained one at Mahabaleshwar.

166.—*Chrysocolaptes gutticristatus.*—All along the Sahyadris.

179.—*Micropternus gularis.*—Khandala and Mahabaleshwar on western declivities.

181.—*Brachypternus chrysonotus.*—Western slopes from Khandala to Goa frontier.

188.—*Yunx torquilla.*—Sparingly about Ahmednagar.

193 *bis.*—*Megalæma inornata.*—Western base of the Sahyadris. Not usually found far up the hill sides.

194.—*Megalæma viridis.*—Khandala, &c. on the top and along the sides of the hills.

197.—*Megalæma hæmacephala.*—Common.

198.—*Megalæma malabarica.*—Sawant Wade forests.

201.—*Cuculus poliocephalus.*—Ahmednagar.

202.—*Cuculus sonneratii.*—Khandala.

203.—*Cuculus micropterus.*—Ahmednagar.

205.—*Hierococcyx varius.*—Common.

208.—*Ololygon passerinus.*—Ahmednagar and Goa frontier, but seldom obtained.

212.—*Coccystes Jacobinus.*—Ahmednagar, Mahabaleshwar.

214.—*Endynamys honorata.*—Everywhere. Abundant at Belgaum.

217.—*Centropus rufipennis.*—Common.

222.—*Taccocua affinis.*—Throughout this region, but rare.

226.—*Æthopyga Vigorsi.*—Mahabaleshwar and Khandala. They began to appear in the valleys and on the western slopes of the hills in April. At that time none had finished moulting. By the middle of May they were abundant in certain localities where *Loranthus obtusatus* is (common). It is at that time in full flower. The fine dress of these birds is then in perfection. Jerdon describes them as having "a stripe, from the chin to the breast, shining violet." He should have said, a stripe *on each side.* The scarlet of the breast of the mature male is always mingled with yellow striæ, caused by some of the tips of the scarlet feathers being yellow. In some birds the yellow rump patch is washed with vermillion. The iris is red brown. I

have searched carefully for young males that had not donned the adult plumage, and succeeded in obtaining two or three indifferent specimens. The colors were similar to those of the adult female, except that the cap was brown with a rufescent tinge, like that of the wings and tail, and there were some dull brick red feathers on the throat and breast. There were no violet ear coverts or moustachial stripes, and no yellow striæ on the breast. I obtained a full plumaged male once at Khandala in August, but have not traced this bird through the fall and winter.

232.—*Leptocoma zeylonica.*—Bombay, Poona, and other places a few miles east of the Sahyadri range. Not found at Khandala or Mahabaleshwar. The iris is bright ruby red.

233.—*Leptocoma minima.*—On the western slopes at Khandala, Mahabaleshwar, and Goa frontier. It moults earlier than either 226 or 232, and is in perfection in March. Hardly one in bright plumage is to be found after the middle of May. Iris, light hazel.

234.—*Arachnechthra asiatica.*—Common.

238.—*Dicæum minimum.*—Common on the western slopes of the Sahyadris.

239.—*Dicæum concolor.*—In the same localities, but rare.

240.—*Piprisoma agile.*—In the same localities, but rare.

253.—*Dendrophila frontalis.*—Goa frontier.

254.—*Upupa epops.*—Common.

255.—*Upupa nigripennis.*—Common.

256.—*Lanius lahtora.*—Common in the Dakhan throughout the year. They live as far from human habitations as they can.

257.—*Lanius erythronotus.*—This is the common shrike along the hills, and is also found more sparingly on the Dakhan plains till April or even May.

260.—*Lanius Hardwickii.*—Common in the Dakhan till March, common at Khandala till the middle of May.

261.—*Lanius cristatus.*—Rare in the district of Ahmednagar.

265.—*Tephrodornis pondiceriana.*—Ahmednagar, but more common along the Sahyadris.

267.—*Hemipus picatus.*—Ahmednagar, but more common along the Sahyadris.

268.—*Volvocivora Sykesii*—Khandala. Rare about Ahmednagar. Common in the woods by the Gatprabha river, in the Belgaum district.

270.—*Graucalus Macei.*—Everywhere, but not abundant.

272.—*Pericrocotus flammeus.*—Khandala and all along the western slopes of the hills, but most abundant on the Goa frontier.

276.—*Pericrocotus peregrinus.*—Common.

277.—*Pericrocotus erythopygius.*—Ahmednagar, rare.

278.—*Buchanga albirictus.*—Common.

280.—*Buchanga longicaudata.*—Khandala and all along the hills. Rarely found in the Ahmednagar district.

281.—*Dicrurus cœrulescens.*—Everywhere, but not abundant.

282.—*Chaptia ænea.*—Khandala low valleys.

285.—*Dissemurus malabaricus.*—Khandala, Goa frontier, and rarely all along the base of the hills.

288.—*Tchitrea paradisi.*—Everywhere at some season, but most common along the hills.

290.—*Myiagra azurea.*—Mahabaleshwar, and more rarely in the Ahmednagar districts.

292.—*Leucocerca albofrontata.*—Common in the Dakhan.

293.—*Leucocerca leucogaster.*—Rare at Mahabaleshwar, common at Satara, Poona, &c., but do not seem to come as far from the hills as to Ahmednagar.

295.—*Culicicapa cinereocapilla.*—Ahmednagar districts.

297.—*Alseonax latirostris.*—Everywhere, but not abundant.

301.—*Eumyias melanops.*—Mahabaleshwar, &c., and sometimes found in the Ahmednagar district.

305.—*Cyornis Tickellii.*—Everywhere in suitable localities, but sparse.

307.—*Cyornis ruficauda.*—Ahmednagar, rare.

309.—*Cyornis pallipes.*—Two specimens procured in deep dark ravines near Parwar on the Goa frontier.

310.—*Muscicapula supercilliaris.*—Ahmednagar. One specimen.

323.—*Erythrosterna parva.*—Found both at Ahmednagar and Mahabaleshwar in the cold season.

342.—*Myiophonus Horsfieldii.*—Along the Sahyadris on both sides. It has become more abundant at Mahabaleshwar within a few years.

345.—*Pitta coronata.*—I have seen three in the city of Ahmednagar. There were none at Khandala in April, but before the end of May they were in plenty in the valley west of the "Duke's Nose."

351.—*Petrocossyphus cyaneus.*—In the Dakhan till March. At Khandala till the end of April.

353.—*Orocetes cinclorhynchus.*—At Mahabaleshwar till into April. A pair was shot near Ahmednagar in October.

354.—*Geocichla cyanotus.*—Common along the hills on both sides.

356.—*Geocichla unicolor.*—Shot by Mr. Blanford at Khandala in November.

359.—*Merula nigropileus.*—Along the top of the Sahyadris. They have become abundant at Mahabaleshwar.

385.—*Pyctorhis sinensis.*—Eastern slopes at Mahabaleshwar, Khandala, &c.

389.—*Alcippe poiocephala.*—Abundant at Khandala, Mahabaleshwar, &c., but not found at Ahmednagar.

398.—*Dumetia albogularis.*—In same localities, but rarer than *Alcippe.*

399.—*Pellorneum ruficeps.*—Shy, but abundant along the hills. Its laughing notes and the babbling of *Alcippe*, are to be heard every morning and evening in Mahabaleshwar.

404.—*Pomatorhinus Horsfieldii.*—Makes all the ravines of the Sahyadris ring with its bell-like notes.

433.—*Malacocircus griseus* met me when on the way to Belgaw on the south bank of the Gatprabha river, and seemed to make that river the boundary between its territory and that of *M. Malcolmi.* I did not see the latter again till after we had passed the Gatprabha on our return to Satara.

435.—*Malacocircus Sommervillei* is the Babbler found on the Goa frontier as well as at Mahabaleshwar and Khandala.

436.—*Malacocircus Malcolmi* is one of the commonest birds around Ahmednagar, Poona, and Satara. It is not, however, found at either Khandala or Mahabaleshwar.

437.—*Layardia subrufa.*—I obtained a single specimen at Talmet, near Mahabaleshwar.

438.—*Crateropus caudatus.*—Common around Ahmednagar.

446.—*Hypsiptes ganeesa.*—Rarely found on the Mahabaleshwar plateau. Abundant on the Goa frontier.

450.—*Criniger ictericus.*—Rarely found on the Mahabaleshwar plateau. Abundant on the Goa frontier.

452.—*Ixos luteolus.*—In thickets by the Gatprabha river in the Belgaw district, but not found on the Goa frontier.

460 *bis.*—*Otocompsa fuscicaudata.*—Abundant along the hills from Khandala to Goa. Does not stray far into the Dakhan.

462.—*Pycnonotus pusillus.*—Eastern slopes of the hills and the Dakhan.

463.—*Phyllornis Jerdoni.*—Along the hills from Khandala to Goa, usually found near the western base.

464.—*Phyllornis malabaricus.*—Along the hills from Khandala to Goa, usually found near the western base.

468.—*Ægithina typhia.*—Throughout our province. The mature birds in the *zeylonica* plumage are respectively more common at Khandala than at Ahmednagar.

469.—*Irena puella.*—Found in the Sawant Wade woods.

470.—*Oriolus kundoo.*—All over our region.

471.—*Oriolus indicus.*—Obtained one in the Sawant Wade woods.

473.—*Oriolus ceylonensis.*—Konkan and on western declivities of the Sahyadris, from Khandala to Goa.

475.—*Copsychus saularis.*—Rare in the Dakhan. Common along the hills.

476.—*Kittocincla macroura.*—In thick woods along the hills. More plentifully in the wooded valley between the reversing station and the "Duke's Nose," at Khandala than in any other locality I have visited.

479.—*Thamnobia fulicata.*—In villages in the Dakhan, as well as on the sides of all hills.

481.—*Pratincola caprata.*—Throughout.

483.—*Pratincola indica.*—Throughout the Dakhan.

488.—*Saxicola opistholeuca* is probably the name of a black and white Stonechat I have twice observed, but failed to secure. At Ahmednagar.

491.—*Saxicola isabellina.*—Rare among bushes in the Ahmednagar district.

492.—*Saxicola deserti.*—Rare among bushes in the Ahmednagar district.

497.—*Ruticilla rufiventris.*—Dakhan in the cold season.

507.—*Larvivora superciliaris.*[1]—Mahabaleshwar and Goa frontier. In damp deep shade.

514.—*Cyanecula suecica.*—Ahmednagar district. By hedges and in bushes and rushes on the banks of streams.

515.—*Acrocephalus stentorius* (=*A. brunnescens*).—Ahmednagar. Among rushes.

516.—*Acrocephalus dumetorum.*—In every tree in the cold season.

530.—*Orthotomus sutorius*(=*O. longicauda.*)—Throughout our province.

534.—*Prinia socialis.*—Nearly as common.

538.—*Prinia Hodgsoni.*—At western base of the hills by Khandala and Mahabaleshwar.

543.—*Drymoipus inornata*, and 544 *D. longicaudatus*, which is the same in winter plumage, are common in the Dakhan.

551.—*Franklinia Buchanani.*—Ahmednagar district. Has the habits of *Chatarrhœa.*

553.—*Hypolais rama.*—Khandala.

554.—*Phyllopneuste tristis.*—Ahmednagar.

558.—*Phyllopneuste lugubris.*—Ahmednagar.

559.—*Phyllopneuste nitidus.*—Ahmednagar.

560.—*Phyllopneuste viridanus.*—Khandala.

561.—*Phyllopneuste affinis.*—Karti, near Khandala.

[1] Equals *cyana* et *cyanea*, Hodgs., *nec cyane*, Pall.—ED., S. F.

562.—*Phyllopneuste indicus.*—Ahmednagar, Khandala.
563.—*Reguloides occipitalis.*—Ahmednagar.
565.—*Reguloides superciliosus.*—Common.
581.—*Sylvia orphea.*—Common in Dakhan.
582.—*Sylvia affinis.*—Common in Dakhan.
583.—*Sylvia curruca.*—Common in Dakhan.
589.—*Motacilla maderaspatana.*—Along all our rivers.
591 *bis.*—*Motacilla dakhanensis.*—Common in the cold season in the Dakhan.
592.—*Calobates melanope.*—Associates with 591, and is common by mountain streams where 591 is rare.
593.—*Budytes viridis.**—Ahmednagar district, following cattle and sheep.
594.—*Budytes calcaratus.*—Ahmednagar and Khandala. In beds of streams and other damp places. Rather rare.
595.—*Nemoricola indica.*—Mahabaleshwar and Goa frontier, in woods. Rare.
596.—*Pipastes agilis.*—Common.
600.—*Corydalla rufula.*—Common in the Dakhan, and found on the hills.
601.—*Corydalla striolata.*—Dakhan. Less common than 600 and 602.
602.—*Agrodroma campestris.*—Dakhan. Common.
603.—*Agrodroma similis.*—One obtained on the Mainpur ghat, near Ahmednagar.
631.—*Zosterops palpebrosus.*—Common everywhere.
645.—*Parus cinereus.*—Common in Dakhan.
648.—*Machlolophus Jerdoni.*—Along the hills.
660.—*Corvus Levaillantii.*—Everywhere.
663.—*Corvus splendens.*—Everywhere, except on the higher mountains. Not often found on the Mahabaleshwar plateau.
674.—*Dendrocitta rufa.*—All along the Sahyadris and in some restricted places in the Ahmednagar district.
684.—*Acridotheres tristis.*—Dakhan and on the eastern slopes of the Sahyadris.
686.—*Acridotheres fuscus.*—Top and western slopes of the Sahyadris.
687.—*Temenuchus pagodarum.*—Everywhere, though numerically less abundant than *Acridotheres*.
690.—*Pastor roseus.*—Comes into the Dakhan in vast flocks in November and stays till April.
694.—*Ploceus baya.* Everywhere.
699.—*Munia punctulata.*—Rare in the Ahmednagar district.
701.—*Munia striata.*—Khandala to Goa along the Ghat hills.

* Probably *cinereocapilla* is meant.—Ed., S. F.

703.—*Munia malabarica.*—Common. Especially abundant in the Ahmednagar district.

704.—*Estrilda amandava.*—Near Mahabaleshwar, rare.

705.—*Estrilda formosa.*—Near Mahabaleshwar, rare.

706.—*Passer indicus.*—Everywhere.

711.—*Passer flavicollis.*—Found everywhere, but in small numbers.

716.—*Emberiza Huttoni.*—Everywhere and abundant on some Ghats.

721.—*Euspiza melanocephala.*—Ahmednagar district. Comes in flocks and is very destructive to the grain crops.

722.—*Euspiza luteola.*—An individual is now and then found in the Ahmednagar district, particularly in the eastern part of it.

724.—*Melophus melanicterus.*—Sparsely scattered on the sides of the Sahyadris, and also of the spurs that extend into the Dakhan.

738.—*Carpodacus erythrinus.*—On both our hills and plains in the cold season, but it leaves us just as the plumage acquires its roseate flush, in the end of March.

756.—*Mirafra erythroptera.*—Ahmednagar district. Among bushes and particularly on hill sides.

758.—*Ammomanes phœnicura.*—In every field in the Dakhan.

760.—*Pyrrhulauda grisea.*—In every field in the Dakhan.

761.—*Calandrella brachydactyla.*—Abundant in the Ahmednagar district in the cold season. It lives in large flocks.

765.—*Spizalauda deva.*—The doubts about this species have been removed by a comparison of specimens with Colonel Sykes' types. Everywhere in the Dakhan.

768.—*Spizalauda malabarica.*—Khandala to Goa, along the hills. It is similar to 765 in appearance and habits, but is larger, darker in plumage, and has a much longer bill.

773.—*Crocopus chlorigaster.*—Everywhere, but not very abundant.

775.—*Osmotreron malabarica.*—Khandala, in the valley west of the "Duke's Nose." Jerdon's description needs to be corrected. The wing feathers are edged with white. The tail appears all green above when closed, but shows the ashy tips of the side feathers when opened. The six middle under-tail coverts of the male are cinnamon colored. The rest of them are of the same green, ashy, and white mixture as in the female. The soft basal part of the bill is glaucous green, but the tips of both mandibles are ashy. The iris is blue with an outer ring of pink or lake-red. Jerdon has made the same mistake, doubtless clerical, in describing the irides of *Crocopus phœnicopterus.* The irides of *Crocopus chlorigaster* at least are smalt blue, with an outer circle of carmine.

786.—*Palumbus Elphinstonei.*—Mahabaleshwar and along the hills, but rare.

788.—*Columba intermedia.*—Everywhere.

792.—*Turtur rupicola.*—All along the Sahyadris, especially on the western slopes, rarely found in the Ahmednagar district.

793.—*Turtur meena.*—At Mahabaleshwar in the cold season.

794.—*Turtur cambayensis.*—Everywhere.

795.—*Turtur suratensis.*—Abundant along the hills, especially on the western slopes. Rare in the Ahmednagar district.

796.—*Turtur risoria.*—Everywhere. Very abundant in the Dakhan.

797.—*Turtur humilis.*—Ahmednagar district, in small flocks in the cold season.

800.—*Pterocles fasciatus.*—Ahmednagar district. In pairs among bushes at the base of hills.

802.—*Pterocles exustus.*—Frequents the open fields around Ahmednagar, often collecting into large flocks.

803.—*Pavo cristatus.*—In wooded hills and ravines, but not abundant in our region.

813.—*Gallus Sonneratii.*—Khandala to Goa along the hills, but nowhere allowed to become abundant.

814.—*Gallopcrdix spadiceus.*—Abundant at Khandala, Mahabaleshwar, and all along the Ghat range.

819.—*Francolinus pictus.*—Dakhan in bushy places.

822.—*Ortygornis ponticeriana.*—Throughout the Dakhan.

826.—*Perdicula cambayensis.*—Khandala, Mahabaleshwar, &c.

827.—*Perdicula asiatica.*—Ahmednagar and the Dakhan generally.

828.—*Microperdix erythrorhyncha.*—Khandala, Mahabaleshwar, &c.

829.—*Coturnix communis.*—Dakhan, in the cold season.

830.—*Coturnix coromandelica*—Dakhan, at all seasons.

832.—*Turnix taigoor.*—Common.

835.—*Turnix Dussumieri.*—Dakhan. Not abundant.

836.—*Eupodotis Edwardsii.*—Ahmednagar district. It is becoming scarce.

839.—*Sypheotides aurita.*—Dakhan.

840.—*Cursorius coromandelicus.*—Dakhan. Common in the cold season, and I have seen them in July.

844.—*Squatarola helvetica.*—Dakhan, in flocks in the cold season.

845.—*Charadrius fulvus.*—I have not seen it, but Mr. Blanford told me he had received specimens from Bombay.

849.—*Ægialitis philippensis.*—Dakhan, Khandala.

855.—*Lobivanellus indicus.*—By every stream in our region.

856.—*Sarciophorus malabaricus.*—Dakhan fields.

859.—*Œdicnemus indicus.*—Dakhan fields.

865.—*Grus cinerea.*—Rarely visits the Ahmednagar district in the cold season.

866.—*Anthropoides virgo.*—Dakhan, in large flocks.

871.—*Gallinago scolopacina.*—In all marshy places, though in small numbers in the cold season.

872.—*Gallinago gallinula.*—In all marshy places, though in small numbers in the cold season.

873.—*Rhynchæa bengalensis.*—Permanent resident in the Dakhan.

885.—*Tringa Temminckii.*—Ahmednagar, &c.

891.—*Actitis glareola.*—Ahmednagar, &c.

892.—*Actitis ochropus.*—Ahmednagar, &c.

893.—*Actitis hypoleucos.*—Ahmednagar, &c.

894.—*Totanus canescens.*—Ahmednagar, &c.

895.—*Totanus stagnatilis.*—Ahmednagar, &c.

898.—*Himantopus candidus.*—Ahmednagar, &c.

900.—*Metopodius indicus.*—Dakhan, but rare.

901.—*Hydrophasianus chirurgus.*—Dakhan, but rare.

902.—*Porphyrio poliocephalus.*—Mr. Blanford tells me he once saw a specimen of this species freshly killed at Poona.

903.—*Fulica atra.*—Not rare in the Ahmednagar district.

907.—*Gallinula phœnicura.*—By the Koina river, near Mahabaleshwar.

909.—*Porzana maruetta.*—Ahmednagar.

910.—*Porzana pygmæa.*—Ahmednagar.

915.—*Leptoptilus argala.*—Dakhan, but is rare.

918.—*Ciconia nigra.*—Dakhan, but is rare.

919.—*Ciconia alba.*—Dakhan, more plentiful.

920.—*Ciconia episcopus.*—Dakhan, more plentiful.

923.—*Ardea cinerea.*—Dakhan, more plentiful.

924.—*Ardea purpurea.*—Dakhan, more plentiful.

925.—*Herodias alba.*—Dakhan, more plentiful.

926.—*Herodias egrettoides.*—Dakhan, more plentiful.

927.—*Herodias garzetta.*—Dakhan, more plentiful.

928.—*Demiegretta gularis.*—Dakhan, more plentiful.

929.—*Buphus coromandus.*—Dakhan, &c., abundant.

930.—*Ardeola Grayii.*—Dakhan, &c., abundant.

931.—*Butorides javanicus.*—By streams along the hills, and sometimes in the Dakhan.

933.—*Ardetta cinnamomea.*—Mahabaleshwar, rare.

937.—*Nycticorax griseus.*—Not uncommon in the Ahmednagar districts.

938.—*Tantalus leucocephalus.*—They breed in the Ahmednagar district, gathering in large numbers in certain villages, and nesting on banyan trees, of which they use every available branch.

939.—*Platalea leucorodia.*—Dakhan.
940.—*Anastomus oscitans.*—Dakhan.
941.—*Threskiornis melanocephalus.*—Dakhan.
942.—*Geronticus papillosus.*—Dakhan.
944.—*Phœnicopterus roseus.*—Sometimes visits the larger collections of water in the Dakhan and the salt pans in Bombay.
952.—*Dendrocygna arcuata.*—Observed at Mahabaleshwar.
953.—*Dendrocygna major.*—Obtained a pair once near Ahmednagar, but I have seen them on no other occasion.
954.—*Casarca rutila.*—Dakhan through the cold season, in pairs along on larger rivers.
957.—*Spatula clypeata.*—Dakhan.
959.—*Anas pœcilorhyncha.*—Dakhan.
960.—*Anas caryophyllacea.*—One rose from a tank close by me, so that I am sure of its identity, though I did not bag it.
961.—*Anas streperus.*—Dakhan.
964.—*Anas crecca.*—Dakhan.
965.—*Anas circia.*—Dakhan.
967.—*Branta rufina.*—Dakhan.
975.—*Podiceps philippensis.*—In all lakes and large tanks.
985.—*Sterna seena.*—Along Dakhan rivers.
1007.—*Graculus pygmæus.*—Along Dakhan rivers.
1008.—*Plotus melanogaster.*—Along Dakhan rivers.

I have omitted some names of birds that I think I have obtained, because they were not carefully examined at the time, and their not having been found for several years, casts some doubt on the old identification.

There are 313 species in this list. Of these some reside in all parts of the district under examination. Some reside in restricted localities, and so deserve particular enumeration.

The following 28 species belong to the Malabar region. The title is used in a wide sense, to include the whole strip of land between the Sahyadri mountains and the Arabian sea. Really the Malabar Coast does not extend half way from Cape Comorin to Bombay. But the conditions of climate and food are so similar from Cape Comorin to Surat, that the region had better be regarded as one and in fact many of the following birds are likely to be found throughout the strip, and to some extent up the similar Coromandel Coast, and are not found elsewhere in the Peninsula :—

32.—*Neopus malayensis.*
115.—*Harpactes fasciatus.*
119.—*Merops Swinhoei.*
140.—*Dichoceros cavatus.*
141.—*Hydrocissa coronata.*
145.—*Tockus griseus.*

151.—*Palæornis columboides.*
153.—*Loriculus vernalis.*
179.—*Micropternus gularis.*
181.—*Brachypternus chrysonotus.*
194.—*Megalæma viridis.*
198.—*Megalæma malabarica.*
202.—*Cuculus Sonneratii.*
226.—*Æthopyga Vigorsii.*
233.—*Leptocoma minima.*
272.—*Pericrocotus flammeus.*
285.—*Dissemurus malabaricus.*
309.—*Cyornis pallipes.*
389.—*Alcippe poiocephala.*
435 —*Malacocircus Sommervillei ?*
437.—*Layardia subrufa.*
446.—*Hypsipetes ganeesa.*
450.—*Criniger ictericus.*
464.—*Phyllornis malabaricus.*
469.—*Irena puella.*
775.—*Osmotreron malabarica.*
786.—*Palumbus Elphinstonei.*
828.—*Perdicula erythrorhyncha.*

In addition to the above, the following 32 species belong to the Sahyadri mountains, as distinguished from the Dakhan, so that 60 species found along the hills, have not been seen by me in the plains of the Dakhan :—

72.—*Ketupa ceylonensis.*
91.—*Ptyonoprogne rupestris.*
164.—*Yungpicus Hardwickii.*
166.—*Chrysocolaptes gutticristatus* (*C. Delesserti.*)
193.—*Megalæma inornata.*
238.—*Dicaeum minimum.*
239.—*Dicæum concolor.*
240.—*Piprisoma agile.*
253.—*Dendrophila frontalis.*
282.—*Chaptia ænea.*
359.—*Merula nigropileus.*
385.—*Pyctorhis sinensis.*
398.—*Dumetia albogularis.*
399.—*Pellorneum ruficeps.*
404.—*Pomatorhinus Horsfieldii.*
460.—*Otocompsa fuscicaudata.*
463.—*Phyllornis Jerdoni.*
476.—*Cittocincla macroura.*
507.—*Larvivora superciliaris.*
538.—*Prinia Hodgsoni.*

595.—*Nemoricola indica.*
648.—*Machlolophus Jerdoni.*
686.—*Acridotheres fuscus.*
701.—*Munia striata.*
704.—*Estrilda amandava.*
705.—*Estrilda formosa.*
768.—*Alauda malabarica.*
793.—*Turtur meena.*
813.—*Gallus Sonneratii.*
814.—*Galloperdix spadiceus.*
826.—*Perdicula cambayensis.*
933.—*Ardetta cinnamomea.*

The following 30 species, as well as several of the *Grallatores* and *Natatores* which would probably be found along the hills at the proper season, have not been observed out of the Dakhan :—

68.—*Brachyotus accipitrinus.*
69.—*Ascalapia bengalensis.*
74 *bis.*—*Ephialtes Brucei.*
81.—*Ninox hirsutus.*
232.—*Leptocoma zeylonica.*
256.—*Lanius lahtora.*
261.—*Lanius cristatus.*
277.—*Pericrocotus erythropygius.*
436.—*Malacocircus Malcolmi.*
438.—*Crateropus caudatus.*
488.—*Saxicola opistholeuca.*
491.—*Saxicola isabellina.*
492.—*Saxicola deserti.*
514.—*Cyanecula suecica.*
515.—*Acrocephalus stentorius.*
543.—*Drymoipus inornatus.*
551.—*Franklinia Buchanani.*
601.—*Corydalla striolata.*
603.—*Agrodroma similis.*
645.—*Parus cinereus.*
699.—*Munia punctulata.*
722.—*Euspiza luteola.*
758.—*Ammomanes phœnicura.*
761.—*Calandrella brachydactyla.*
800.—*Pterocles fasciatus.*
802.—*Pterocles exustus.*
827.—*Perdicula asiatica.*
835.—*Turnix Dussumieri.*
836.—*Eupodotis Edwardsii.*
839.—*Sypheotides aurita.*

840.—*Cursorius coromandelicus.*
856.—*Sarciophorus malabaricus.*

I have been interested in comparing this list with Captain Butler's list of the avi-fauna of Mount Aboo and Northern Guzerat. ("STRAY FEATHERS," Volume III, pp. 437—50, and Volume IV, pp. 1—41.) In the notes appended by the Editor of "STRAY FEATHERS," we find on page 36 of Volume IV, a list of 31 species that belong "exclusively, so far as the region with which we are dealing is concerned, to Mount Aboo." By examining this list of the birds we have found at Khandala, &c., it will be seen that we have no less than 23 (or perhaps 25) of these specialties of Mount Aboo within our borders.* Those we have not found are the following :—

9.—*Falco peregrinator.*
13.—*Hypotriorchis subbuteo.*
75 *ter.*—*Ephialtes bakhamuna.*
77.—*Athene radiata.*
147.—*Palæornis eupatria.*
171.—*Gecinus striolatus.*
219.—*Taccocua Leschenaulti.*
404 *ter.*—*Pomatorhinus obscurus.*

But 219 may be the same bird that we have identified as 222 *Taccocua affinis*, and 404 *ter* may be the same bird as the one we call 404 *Pomatorhinus Horsfieldii.*

As to Captain Butler's entire list, it contains 102 species that we have not found in the region we have under review. They are numbers

1	180	539	767	876	958
3	199	544 *bis*	769	877	962
3 *bis*	219	545 *bis*	772	878	963
4 *bis*	246	550	799	880	966 *bis*
8	260 *ter*	582 *bis*	801 *bis*	884	968
9	262	592 *bis*	818	896	969
13	273	597	834	897	971
28	404 *ter*	605	837	899	973
42	432	645 *ter*	840 *bis*	905	974
70	459	646	846	908	980
75 *ter*	480	681	847	917	983
77	489	685	848	936	984
98	491 *bis*	688	852	943	965
120	492 *ter*	695	853	944 *bis*	1001
147	494	716 *bis*	858	945	1004
167	520	757	863	950	1005
171	536	765 *bis*	875	951	1006

* This is what might have been expected, one great characteristic of the avi-fauna of Aboo being, as I pointed out, *Loc cit*, the strong admixture of Southern forms, which here find their northernmost limit, and are nowhere found in the plains country round about.—ED., S. F.

On the other hand our list contains 84 species that are not recorded as found in Guzerat by Captain Butler. Their numbers are as follows :—

31	145	253	437	601
32	151	267	446	603
34	153	272	450	686
39	166	280	452	701
52	181	282	463	765
61	194	285	464	768
63	198	290	471	775
65	201	295	476	786
72	202	297	479	793
74	203	309	507	828
74 *bis*	222	310	558	909
104	226	354	559	910
115	232	389	560	933
119	233	399	561	952
127	238	404	563	953
140	239	433	565	960
141	240	435	595	

The excess in favor of the Guzerat avi-fauna is due principally to the large number of water birds found there that do not visit us. We doubt not that a collection made in the vicinity of Bombay in the cold season would so largely increase our list that the excess would be in our favor.

Ornithological Notes and Corrections.

By W. Edwin Brooks.

28.—Aquila maculata, *Gmelin (Aquila clanga*, Pallas), the Spotted Eagle.

There appears to be so much uncertainty as to what species *Aquila nævia* of Gmelin, Brisson, and the old authors really is, that it appears to me desirable to use instead Gmelin's term *maculata*, which is founded upon Latham's description of the "Spotted Eagle."

This latter description is very clearly defined, and together with his observations upon the names and geographical distribution of the species, fixes the bird beyond all doubt as the greater Spotted Eagle.

Aquila nævia of Schwenckfeld (the original describer of *nævia*) is, Mr. Dresser informs me, the common Buzzard, this being the case, it is not desirable to continue the use of the term for the Spotted Eagle.

It should be remembered that both Brisson's and Gmelin's descriptions are not original, but taken from older authors.

Aquila rufonuchalis, n. s., the Lesser Spotted Eagle of Europe.

As far as I can see, there is not any existing term which is clearly applicable to this Eagle, and I therefore give it a name for convenience sake, and having reference to its first plumage.

Continental as well as English naturalists have been in the habit of applying to it the term of *Aquila nævia*, but this term is, as Mr. Dresser has shewn (Annals and Magazine of Nat. Hist., May 1874) wholly inapplicable; and with him I protest against its use for the species in question.

A new name for so well known a bird will surprise many; but who can prove to a demonstration that any previously existing term clearly belongs to it? Neither of Brehm's terms "*pomarina*" and "*subnævia*" relate to this Eagle, although they are given as synonyms by Mr. Sharpe.

I shall describe this Eagle as follows.—Of nearly the same size as *Aquila hastata*, but slightly more robust; general tone of body plumage very similar, but more inclined to rufous, especially about the head; the eye of the adult is said to be yellow, and I have seen a note to this effect upon the labels of skins collected by Mr. Robson at Belgrade; in the *first plumage it has a large fulvous or buff triangular nuchal patch*, the point of the triangle being downwards; the size of this patch is about two inches wide by one and a half inches in depth; the spots on the wings are similar to those of *Aquila hastata*, but the markings on the head and neck differ, being more like very narrow short stripes, instead of simple light tips; there are spots on the lower back, sometimes triangular, and sometimes plain roundish spots at the end of the feather; the lower tail coverts are, as a rule, of a darker tone than in *Aquila hastata*, and are striped or spotted as the case may be, with dull whitish; in adult plumage it is of course entirely spotless, being then a plain hair brown bird like *Aquila hastata*? in this stage the head and carpal region of the wing are generally lighter in tone than the rest of the upper surface. The tone of the bird in this stage, especially about the head, is more rufous than that of *Aquila hastata*.

I have examined three examples in first plumage, and they all correspond as regards the remarkable nuchal patch. There is a fourth in the Norwich museum with, I am told, a similar patch, but this one I have not seen; anyhow, a concord between three examples, and the first three young birds I have seen,

is conclusive as to specific distinctness. I have seen several in other stages of plumage, up to the entirely spotless one, but it would take up too much time now to copy the detailed descriptions out of my note-book.

It will be well to note here the points of difference between this Eagle and *Aquila hastata*, with which it may be very easily confounded:—

1. The nuchal patch in first plumage; and it is strange that this Eagle has a nuchal patch in *first* plumage, while the much larger *Aquila nipalensis* gets the nuchal patch in the *final* stage.
2. More rufous in general tone of plumage.
3. Inclined to have a paler and more sandy-colored head.
4. Frequently the upper part of the wing or carpal region, and immediately below the scapulars when the wing is closed, is of a very light brown, contrasting strongly with the darker brown of the back. I have seen many examples of *Aquila hastata*, but in only one in the museum of Mr Hume, is this peculiarity marked. It is conspicuous in most examples of the common Indian Kite, *Milvus affinis*.
5. The nostril as a rule is larger, but of the same shape
6. The outline of the top of skull, seen in elevation, has the occipital portion raised higher above the line of top of bill than in *hastata*. This is generally the case, but a few have the skull-shaped as in *hastata*.
7. The darker lower tail coverts of the immature bird and which are sometimes tipped, and sometimes striped with dull yellowish white.
8. The spots in the lower back, and which I have only seen in one example of *hastata* from Darjeeling collected by Major Sharp, and now in the collection of skins in the British museum.
9. The fine narrow stripes of fulvous on the feathers of the back of head, which feathers in *hastata* are merely tipped with this color.
10. The yellow eye. This I only have evidence for, and cannot confirm from my own observation.

Of the above points the nuchal patch, the spots in lower back, and the more rufous tone of the bird, especially about the head, are the most important.

I once united this Eagle with *Aquila hastata* from a comparison of mature birds only; but I was mistaken, for in immature plumage, there is considerable difference.

Mr. Dresser (in Annals and Magazine of Nat. Hist., May 1874) has applied Gmelin's term of *Aquila maculata* to

this species, which in my opinion is wrong for the following reasons:—

1. Latham's description (on which Gmelin's is founded) is very accurate, noting even the small spots on the tibia; it is clear from the amount of spots to which he refers, and from the striated lower parts, that the bird was in first plumage; and taking the minuteness of the description into account, it is not likely that he would omit all notice of the *one* large spot the bird possesses, *viz.* that on the nape of the neck.

2. He speaks of the wing spots as "giving the wing a most beautiful appearance." The wing spots of the lesser bird are not very conspicuous, and at the distance of a few yards it would hardly shew its spots at all; but take a young example of the larger bird, and its big shower of large oval white spots at once command attention, for they really present "a most beautiful appearance."

3. Latham says, the inner secondaries are white at their ends "for more than an inch, which is decidedly not the case with *Aquila rufonuchalis*, which has these white tips considerably shorter," most examples of the larger bird, however, fully come up to the requirement.

4. The back is said to be spotted with buff, and speaking of the large oval white wing spots, he says:—"The feathers on the middle of the back are likewise spotted, but of a pale buff color." The larger bird is noted for large oval buff spots on the back, which are often so numerous and large, that they coalesce. Let me here remark that I cannot say at what stage these large oval spots are exchanged for smaller triangular ones; perhaps after the first moult.

5. In his later description of the bird (1821), in which he adopts Gmelin's Latin term, Latham gives further particulars and says, the bird "is found everywhere in Russia and Siberia, and even in Kamtschatcka," that "it has a plaintive cry, hence called Planga and Clanga." Latham's synonomy also connects his bird with the larger and well-known Spotted Eagle.

In the face of the above evidence it is impossible to correctly apply Latham's term to the small German Eagle, which neither answers to the description, nor to the geographical distribution indicated. *Falco maculatus*, Gmelin, is therefore a term clearly applicable only to the larger and well-known bird.

Aquila nævioides, *Cuv.*

I have seen a third South African example in the collection of Canon Tristram, and it corresponds very closely with the first one that I described (Pros. A. S. B. 1873, pp. 173, 174).

I have seen two or three of the dark Abyssinian species usually referred to *A. nævioides*, but I consider them quite

distinct, and probably referable to *Aquila albicans*, Rüppell. There is no disposition to rufous in the Abyssinian bird, while *nævioides* is pre-eminently rufous, the most rufous of Eagles. I have seen an old very pale-faded example of the South African bird which was in the moult, and the new feathers, which were just coming, were of a full rich red. The dark Abyssinian species is in every way as distinct as possible, and is closely affined to the Indian *A. vindhiana;* but it is larger, more robust, and possessed of more uniform coloration.

41 *bis.*—Poliætus plumbeus, *Hodgs.*

I examined specimens of *P. humilis*, Schl. and Müll, which are distinct from the Indian bird, and very much smaller.

49.—Archebutio strophiatus, *Hodgs.*

I saw one of Hodgson's examples in the British museum. It agrees very closely with his drawing, and this leads me† to adhere to my conclusion that *A. cryptogenys*, Hodgs, is a good and entirely distinct species. Hodgson's minute details of the latter shew a much feebler bird of distinct coloration. The type is not to be found now, so we have a rarer bird than what the great Auk was to search after. *Aquila hastata* that myth of an Eagle has been brought thoroughly to light, so let us hope that some determined ornithologist will succeed in making *A. cryptogenys* well known.*

56.—Milvus govinda, *Sykes.*

I examined the type in the Kensington museum. There are two examples there labelled "*Milvus govinda*," but one, which is a small example of *Milvus affinis*, Gould, does not in any way agree with Sykes' original description, and it must therefore be discarded.

† The type bird is in almost juvenile plumage, having the lower parts striated. The wing is 19·5 inch, and the tail 11·5

* Personally I have little doubts that *cryptogenys, hemiptilopus, and strophiatus* are all one and the same Coloration goes absolutely for nothing in these birds, and the males are markedly feebler than the females See my remarks on Buzzards in the Travancore paper.—Ed., S. F.

† Is not this rather begging the question? In the first place there is nothing to show that *either* of these was the type. Colonel Sykes by no means gave all his collections to the Indian Museum. I remember that as late as 1862, the last time I was in his house, he had a number of mounted birds there—as far as I remember all moderate-sized ones; but he may have had larger ones elsewhere.

In the next place Mr. Brooks ignores what I conceive to be a fundamental fact, *viz.*, that we have 3 distinct Kites in India the small *affinis* identical, as I years ago showed, with Australian specimens. A larger Kite with mottled bases to the primaries which I hold to be *govinda*, and a much larger Kite, with pure white bases to the primaries, which is my *major*. Either of these latter may be *melanotis*, T and S, but both cannot be, and from what Mr. Gurney writes to me of the basal portions of the primaries in *melanotis*, I believe that this belongs to *govinda* if it belongs *to either* of our Indian species.—Ed, S. F.

inches long. As mounted, the bird with its head bent, measures 24 inches; and in the flesh, measured with head and body in one line, would have fully reached the dimension of the original description or 26 inches. There is no original label on either bird. The primaries of the type are largely mottled with white on the basal portion when the wing is opened and looked at from below. There are a few very rufous new feathers appearing in the upper plumage.

It is a decided example of *Milvus melanotis*, T. and S., which term, together with *Milvus major*, Hume, become synonyms of *Milvus govinda*, Sykes.

Milvus affinis, Gould; I examined some Australian examples and found them identical with our common Indian Kite.

243 *bis*.—Certhia Hodgsoni, *Brooks*.

My distinction of four plain outer primaries holds good. In all the European ones I have examined, there are three plain primaries. Supposing one or two of the English species were found with four plain outer primaries, this would not invalidate a general rule, and a prevailing difference, even with an occasional exception, must not be set aside. *Sitta cashmirensis*, Brooks, is considered by Mr. Dresser and others who have seen it to be a good species. I mention this as it was doubtfully referred to in birds of Europe.

297.—Alseonax latirostris, *Raffles*.

A. cinereoalba (T. and S.); I have seen two more examples from Japan,* and they do not agree with the Indian *A. terricolor*, Hodgs. The bill is somewhat differently shaped, and has much more black on the lower mandible; also the general tone of the plumage is much more ashy or greyer than that of *terricolor*. Mr. Swinhoe was wrong in uniting the two species.

323 *bis*.—Erythrosterna parva, *Meyer and Wolf*.

Indian examples are not to be separated from European ones. It appears that I was wrong in considering Indian examples of *parva* to be *E. hyperythra*, Cabanis, figured by Holdsworth, in winter dress. *E. hyperythra* must therefore be a hill species, which does not migrate to the plains of India in the cold weather.

* *A. latirostris* was described from Sumatra—all we in India contend for is that *latirostris* is probably identical with *terricolor*, Hodgs, inasmuch as we get this *terricolor* not only all over India, but in the Andamans and throughout the Malay Peninsular to within a few miles of Sumatra. Whether the Japanese bird is distinct or not, does not alter the fact that *latirostris* of Sumatra is infinitely more likely to be identical with birds on the other side of the Straits of Malacca than with Japanese birds, and that therefore our Indian bird which is identical with specimens from the latter locality ought in all human probability to stand as *latirostris*.—Ed., S. F.

We have then in India three closely affined species, *E. parva*, *E. albicilla*, *Pallas* (erroneously termed *leucura*, Gmelin), and *E. hyperythra*.

393 *bis*.—Stachyris rufifrons, *Hume*.

Stachyris præcognitus, Swinhoe, has a very red head and no striæ like *S. rufifrons*, Hume. The latter is smaller and somewhat paler on the head.

483.—Pratincola indica, *Blyth*.

Is quite* distinct from *rubicola*, and as observed by Mr. Swinhoe, has always the upper tail coverts plain, which in *rubicola* are always marked longitudinally with dark brown. This is an unfailing distinction; so let the confounding of these two distinct Stonechats be abandoned for the future.

Pratincola robusta, *Tristram*.

I examined the two types, and consider this remarkably fine large Stonechat to be a good species. It is rarer than *P. insignis*, Hodgson.

548.—Drymoipus inornatus, *Sykes*.

I examined the type, and it is in the *longicaudatus* plumage, or the winter plumage of *D. terricolor*, Hume.

The synonyms of this bird are therefore—

D. inornatus, *Sykes*.

D. longicaudatus, *Tickell*.

D. terricolor, *Hume*.

The difference between winter and summer plumage is fairly shewn in the plate in Lahore to Yarkand, except that the tip of the tail of the winter bird (*D. longicaudatus*) is too white.

I took a number of Indian examples with me to compare with Sykes' type, in order that no mistake might be made.

550.—Drymoipus lepidus (*Burnesia lepida*, Blyth.)

This is quite distinct from *Drymaeca gracilis*, Rüpp, and lays a blue egg streaked with black,† while the eggs of *D.*

* Some time ago I examined my large series of Indian and European birds and this distinction appeared to me infallible. Did not Cabanis first point it out? c. f. III, p. 429, and note, p. 239.—Ed., S. F.

† There is some mistake here. Our Indian bird, *gracilis* or *lepidus*, whichever it may be, lays a small glossy egg, with a dull white, greenish white, or pale green ground, profusely freckled and streaked, and, at times, even blotched with a bright, only slightly brownish, red; the markings are densest around the large end where they form a broad nearly confluent well-marked but imperfect and irregular zone. See also Nests and Eggs, Rough Draft, page 357. Since this was written Captain. Bingham has taken a very large number of these eggs, and they correspond perfectly with the specimens received from Mr. A. Anderson. I do not know what Mr. Brooks means by saying this bird lays a blue egg streaked with black.—Ed., S. F.

gracilis, which I have from Palestine taken by Canon Tristram, are as red as those of a *Prinia*. *D. lepidus* is a true *Drymoipus*, and should not be generically separated because it is streaked. The note is exceedingly like that of *D. inornatus*, but weaker, and its habits are very similar.

553.—Hippolais rama, *Sykes.*

I examined the type which Mr. Dresser correctly determined as the larger and greyer in species. I had specimens of both species with me for comparison.

Phyllopneuste coronata, *T. & S.*

Is very like *Reguloides occipitalis*, but with darker and rather stronger bill. It is a rather brighter colored bird, and the lower tail coverts are pale yellow. The latter point is the characteristic distinction. It is quite distinct from *R. occipitalis*, with which it has been erroneously united.

Phylloscopus Brehmii, *Homeyer.*

I have seen the type, which is *P. rufa*. The small Chiffchaffs are only the females, and not distinct species.

Phylloscopus brevirostris, *Strickland.*

I have examined the type, and it is beyond all doubt only *P. rufa*. The wing formula of this species is subject to slight variation, which includes the proportions of the primaries of *P. brevirostris*.

Phylloscopus abyssinicus, *Blanford.*

Is also *P. rufa* in fine pure spring plumage.

It was very satisfactory to find that the types of the three new Chiff-chaffs—*Brehmii*, *brevirostris*, and *abyssinicus*, were founded upon some of the phases of *P. rufa*. I myself had described very small female examples of *rufa* as *P. Tristrami*; but the Editor of the *Ibis* did not insert my paper as soon as I could have wished and I recalled it. I am glad now that the delay took place, or there would have been one more useless synonym of the Chiff-chaff.

Some years since I came to the conclusion that *Phylloscopus tristis*, Blyth, was identical with *P. rufa*. I had found that an example of *P. brevirostris*, sent me by Canon Tristram, was apparently identical with *P. rufa*. Blyth, in *Ibis* for 1867, page 25, suggests the identity of *tristis* and *brevirostris*; Jerdon also (Birds of India, page 873) refers to the identification on Blyth's authority; and as *brevirostris* was clearly *rufa*, I erroneously jumped to the conclusion that *tristis* = *rufa*. Close

comparison of a good series which I afterwards got of *rufa*, with our Indian bird, soon convinced me that I was wrong.

The European and Asiatic Chiff-chaffs much resemble each other, so a word or two upon their differences will not be out of place.

Tristis is not nearly so greenish above, nor so yellowish below as *rufa*. It is pale greyish, brown above, and dull fulvous white below, like *rufa*, it is rufous about the head, or strongly tinged with reddish white, the cheeks and supercilium especially shew this tint. *Rufa* is olive above, and much more tinged with yellow on the lower parts. Both birds have the bright yellow axillaries and edge of wing. While *rufa* is a rather richly toned *Phylloscopus*, *tristis* is, with the exception of *neglectus*, the most sober-toned of the group.

With regard to the eggs said to be those of *tristis* taken by Messrs. Seebohm and Harvie Brown, I am not quite satisfied with them. They are exactly like those of *trochilus*, but rather smaller than the average. They rest entirely upon native evidence, and were taken where *trochilus* is common. They therefore require confirmation. I should expect the eggs of *tristis* to be more like those of *rufa*, *viz.* spotted with dark purple brown, instead of light red. Still the eggs may be those of *tristis* which time will shew. *Vide Ibis* for April 1876.

Phylloscopus xanthodryas, *Swinhoe.*

Is a very distinct species, similar in coloration of upper surface to *P. magnirostris*, but rather greener; and its lower surface is different, being a rather clear greenish yellow, more inclined to green than yellow. It is less infuscated on the sides of the breast and flanks than *magnirostris*. The second primary equals the 6th. It is about the same size as *magnirostris*.

Phylloscopus plumbeitarsus, *Swinhoe.*

Is also a good species. It is about the size of *P. viridanus*, and has two wing bars. It is somewhat greener than that bird, and its supercilium is broad and long. The bill is stouter than in *viridanus*, being more of the *magnirostris* shape. Dried skins do not shew the colour of the legs and feet as different from those of *viridanus*, but no doubt the lead color is apparent in fresh examples. The second primary is equal to the seventh.

Phylloscopus tenellipes, *Swinhoe.*

Another good bird; is a small *Phylloscopus* of entirely different coloration, brownish olive, above and passing to very rufous olive on lower back and tail. The head is inclined to greyish

brown. There is a buff-colored wing bar and indications of a second one. Supercilicum reddish white inclined to yellow anteriorly. A very dark band through the eye: cheeks mottled with brown; lower parts white, washed with brownish on sides of breast and flanks. Bill rather short and stout, legs and feet very pale, as in *Horornis*. The second primary is equal to seventh, or between sixth and seventh.

Phylloscopus umbrovirens, *Rüpp.*

Is a remarkable species. Head ruddy brown, wings very green; tail greenish; no wing bars; bill rather stout; a warm brownish supercilium; from chin to breast light rufous brown or brownish buff, becoming paler lower down towards tail coverts.

Phylloscopus Schwarzii, *Radde.*

I am afraid that my namesake, P. Brooksi, Hume, belongs to this species.* Comparing my colored sketch of the type, the only difference I can perceive is the slightly longer bill. Dimensions of two examples were: —

	Wing.	Tail.	Bill at front.	Bill from nostril.	Bill from gape.
♂	2″·5	2″·26	·29	·29	·47
♀	2″·5	2′·15	·29	·27	·5

The total lengths given on the labels are ♂ 143 Mill. ♀ Mill. 131. I have given a few particulars of *Phylloscopi* that are not Indian to facilitate identification; if any of them happen to turn up in India, which is not at all unlikely as regards the three Chinese species.

582.—Curruca affinis, *Blyth.*

The distinctions I have pointed out ("Stray Feathers," 1875, p. 272) hold good, and the Indian bird is quite distinct from its European congener.

582 *bis.*—Curruca cinerea, *Latham.*

Mr. Hume shewed me examples killed in the west of India.

* I am inclined to doubt this identification; *Schwarzii* is very carefully figured by Radde "Reisen im sudën von ost Sibirien." Table 9.

Neither of the two figures shew any supercilium, whereas this is very large and conspicuous in *Brooksi* extending to the nape. The shape of the first quill is different, and the bill of *Brooksi* appears to be not only shorter, but not nearly so broad; however, Mr. Brooks may be correct, but I had fully considered *Schwarzii* when I described *Brooksi*.—Ed., S. F.

Anthus Seebohmi, *Dresser*.

I examined this bird. It has a longer and stronger bill than *pratensis*, and more resembles *Corydulla* than *Anthus*. The coloration is rather different from that of *pratensis*, and there are a few whitish feathers, mingled with the dark brown of the shoulders. The third primary is shorter than in *pratensis*, being one-sixth of an inch short of tip of wing. The outer tail feathers are not white, but pale brownish white, or a rather soiled cream color. The wing is the same length as in *pratensis*. But for the long strong bill, it might, at first sight, be mistaken for *pratensis*. It is a good species.

597.—Anthus agilis, *Sykes*.

I examined the type which I found to be undoubted *arboreus* or *trivialis*, as suggested by Mr. Blyth. I had a number of Pipits of various sorts with me in order to make sure work, but it was apparent at a glance, that Sykes' bird was the common Tree Pipit of Europe. To some the identification would not have been easy work; for the type, like an old soldier, has a false leg belonging to some other species. It has a white leg, and a stronger black one. The white leg is an original one, but the toes are all decayed, and from the foot the species could not be determined. The character of the plumage as regards striation of back, the bill, size of wing, &c., are what we have to go by, but they are sufficient for any one who knows the species. I trust the term *agilis* will not in future be the favourite one for the very distinct green Chinese Pipit, *Anthus maculatus*, Hodgs.

Accentor multistriatus, *David*.

From North China, is excessively like *A. strophiatus*, Hodgs.; but is paler, and somewhat larger. It is quite distinct from both *A. strophiatus* and *A. Jerdoni*, Brooks.

679.—Fregilus graculus.

This is Indian, and is the species found in Persia and Cashmere.

Fregilus himalayanus, Gould, is a larger bird, with considerably longer wing and bill; and the color of the bill and legs is retained much better in skins than in the other species. I think the large species should be kept distinct.

765.—Spizalauda deva, *Sykes*.

This type I carefully examined, and it is the small bird that Mr. Hume named S. *simillima*.

Additional Notes on the Avi-fauna of the Andaman Islands.

SINCE the publication of my paper on the avi-fauna of the Islands of the Bay of Bengal,* a very large number of specimens, chiefly from the Andamans, have, owing to the kindness of General D. Stewart, Captain Wimberley, and Mr. A. F. de Roepstorff, passed through my hands.

Several good species, *Ephialtes modestus*, *Emberiza pusilla*, *Tringa crassirostris*, and *Strix de Roepstorffi*, have been added to the list, as also one doubtful one *Hypotænidia abnormis*. I have now to add three others—*Accipiter nisus*, *Cuculus canorus*, and *Gelochelidon anglica*. Some species that were doubtful have proved to be invalid like *Janthenas nicobarica*, *Geocichla andamanensis*, and *Megapodius trinkutensis*; others again, such as *Alcedo Beavani* (entered by me as *A. asiatica*), *Halcyon saturatior*, *Pelargopsis intermedia*, *Hypotænidia obscuriora*, *Turnix albiventris*, have proved in my opinion valid species.

As to several species, *e.g.* *Milvus govinda*, *Pastor roseus*, and *Pelecanus philippensis*, the further experience of several years confirms the view that I originally took that these cannot be considered as pertaining to the *ornis* of these islands, though a straggler of one or other of them may possibly have occurred there.

Of some species again the continued failure to procure any further information, *e.g.*, *Hirundo andamanensis* and *Oreocincla inframarginata*, strengthens the conviction that there has possibly been some mistake in regard to them.

It is quite certain now that *Acridotheres fuscus* and every other species introduced by Colonel Tytler, with the exception of *Acridotheres tristis* and *Pavo cristatus*, have entirely died out.

I have jotted down from time to time a few further notes in regard to the avi-fauna of these islands which have occurred to me in examining the numerous collections which have been kindly submitted to me, and I take this opportunity of now putting these on record.

I have entered the names of all species not included in my first list (II, p. 139,) in antique type.

8.—*Falco peregrinus*, Gmel.

To General Stewart I am indebted for a specimen of this species procured at Port Blair. We saw the species at Preparis, and Dr. Armstrong lately obtained a specimen at Diamond Island, not far from Cape Negrais, so that the route by which this species (and probably the several *Accipiters*) arrive at the Andamans is pretty clear.

* See Vol. II, p. 139, *et seq.*: see also Vol. II., p. 489, p. 490, *et seq.* p. 531; Vol. III, p. 264, p. 280, p. 327, and pp. 389, 390.

24.—Accipiter nisus, *Lin.*

The occurrence of the European Sparrow Hawk at the Andamans, where a fine female, which he has just sent me, was killed in October, by Captain Wimberley, is worthy of note. This species has not as yet been recorded from Tenasserim, and its occurrence in Burmah *at all* rests solely on Captain Fielden's belief that a bird he shot some years ago at Thayetmyo was *Accipiter nisus.* It occurs eastward as far as China, southwards to Ceylon, but does not extend its wanderings, as far as is yet known, to Malayana or the Archipelago—and the South Andaman is the most south-easterly point from which it has been as yet recorded.

25.—*Accipiter virgatus,* Temm.

Three more specimens of this species, all young birds of the year, and killed in the South Andaman in August and September, were sent me by Captain Wimberley. In all (see Vol. II, p. 141) the fourth quill is decidedly longer than the fifth.

The birds, two females and one male, are small and more brightly tinged with rufous than is usual in the case of continental exemples.

♂	Length,	10″·75	Wing,	5″·8;	Tarsus,	1″·8	Tail,	4″·5.
♀	„	13″·5	„	7″·3;	„	2″·1	„	6″·0.
♀	„	12″·9	„	7″·1;	„	2″·0	„	5″·5.

34 *bis.*—*Spizaetus andamanensis,* Tytler.

This species is not so rare as I fancied; I have now received other specimens in young and intermediate stages of plumage.

Two males measured:—Length, 22″·5—22″·75; wing, 14″—14″·2; tail from vent, 9″·75—9″·5; tarsus, 3″·5—3″·6; bill from gape 1″·8.

One of these, which from analogy I take to be a young bird, has the entire head and neck all round and entire lower surface white with a faint creamy tinge on the head and neck; the ear coverts unstreaked white; no mandibular stripe; the faintest possible trace of a throat stripe; the breast feathers with a very few linear lanceolate dark brown shaft stripes.

Feathers of the centre of the crown and of the broad nuchal sub-crest, as also the feathers of the nape below this crest and the sides of the basal portion of the neck, with dark brown oval sub-terminal shaft spots. Forehead and sides of the crown and the feathers immediately beyond the ear coverts, with dark shaft stripes; mantle deep wood brown, the feathers margined paler; the tail has a broad sub-terminal dark brown band, with a narrow white tipping, and there are *six* well-marked, nearly equidistant, half inch broad, dark brown bands, on a somewhat olive brown ground, above this.

In the next stage the dark shaft spots on the head and nape are more numerous and more developed: the ear coverts and cheeks and sides of the throat are striped with dark brown;

a narrow central throat stripe appears; most of the feathers of the breast and abdomen exhibit large (though not so large as in the fully adult), somewhat wedge-shaped, terminal brown shaft spots, and the tibiæ and vent feathers acquire a fulvous brown tint. In this stage the whole lower surface is sometimes tinged with a dirty pale fulvous brown. The third stage, that of the fully adult, has been already described in detail, Vol. II, page 142.

I do not exactly understand the changes that take place in the barrings of the tail. In the quite young bird, above described, there are six bars besides the sub-terminal one; in the two in Colonel Tytler's collection which I examined, and which were also, as I now know, young and not adult birds, there were four bars only, besides the sub-terminal one. In the old adult described, Vol. II, page 142, there are five. In the specimen described by Captain Beavan there were apparently six, besides the terminal one. As a rule in the *Spizaeti*, the bars in the young are more numerous and more or less equidistant; as the bird grows older, some of the bars get absorbed, the terminal bar becomes much broader than the rest, the succeeding interspace becomes broader than any of the other interspaces, and the remaining bars often reduced to half the number that exist in the young bird, also grow broader and more pronounced. But then, as in many other of the Raptores, the changes of plumage of the lower surface and of the tail are not always synchronous, and specimens will be found with a perfectly adult tail which have not yet assumed the perfect adult plumage below, and again others in which the chin, throat, and whole lower parts, are those of the perfect adult, while the tail has not yet completed its changes.

39 *quat.*—*Spilornis Davisoni*, Hume.

This species appears to be quite as common at the Andamans as *Elgini*. I have examined now fully fifty specimens, and all I previously said of this species (Vol. II, pp. 147-8) is correct. Call it a local race or sub-species, or species, its coarse stout tarsi, with their coarse conspicuous scutation, and wings only varying from about 14 to 15½ inches, separate it at once from the other races of *cheela*, *melanotis*, Jerd., and *Rutherfordi*, Swinh., of both of which as of *Davisoni*, I have now *very* large series.

As I said long ago, this race seems to me to come nearest *pallidus*, Wald., but it differs (at rate if Mr. Sharpe's figure and description, Cat. I, p. 290, pl. IX, are correct) from this latter in two important particulars at least. In the first place instead of having a comparatively short though full crest, it has a *very* long one, completely covering when not raised the whole back of the nape; in a fine male, measured from the forehead where it may be said to commence, it extends 5·2 inches backwards. In the second place the tail is differently marked. In *pallidus* the tail is all dark brown, tipped of course paler and with one broad

median ashy white band. Of the central tail feathers of the above specimen of *Davisoni* the basal 3·5 inches (of which all but 1″·2 is hidden by the upper tail coverts) are a rather warm hair brown. Then comes a broad very dark brown bar of 1″·9, margined above on the inner web with an 0″·1 broad wavy pure white line. Then after the dark brown bar comes a broad (1″·3) pale bar, white at its upper and lower margins, elsewhere clouded with pale brown. Then follows a sub-terminal 2-inch blackish brown bar, tipped for 0″·2 with pale brown, and then beyond that with pure white for 0″·1. Add to this that *Davisioni* has apparently a larger bare lore space than *pallidus*. In this latter the frontal feathers descend on either side as low as a line joining the nostrils and the anterior angle of the eye. In *Davisoni*, they nowhere cross a line drawn from the culmen of the cere, to a point about 0″·15 above the upper margin of the eye. This holds good in every one of sixteen specimens now before me, one of which has apparently only just left the nest, while three are clearly *old* adults. I feel sure myself that the species (or sub-species) is a good one.

39 *sextus.—Spilornis minimus*, Hume.

Mr. De. Roepstorff has procured three other specimens of this species, two in the very same locality where our former specimens were obtained, and one at Katchall. The first he has sexed as a female. It measured :—Length, 18″·5; wing, 11″·5; tail from vent, 7″·5; tarsus, 2″·75; bill from gape, straight to point, 1″·7; the bird appears to be adult and is a perfect miniature of adult *cheela*, but entirely wants any barring on the throat and entire breast.

The second is a nearly adult male, it is in the adult plumage, but is paler than the preceding, and has the scapulars and all the coverts tipped with white. It has no trace of barring on the throat or breast. It measures:—Length, 18″·7; wing, 11″·1; tail from vent, 7″·6; tarsus, 2″·75; bill from gape, 1″·6.

The third of these is sexed a female, it is in the first plumage very similar to that of *cheela*. It measures:—Length, 19″·25; wing, 11″·3; tail, 8″·3; tarsus, 2″·7; bill from gape, 1″·67.

We have now five specimens, males and females of this interesting species in different stages of plumage, and these fully confirm my original brief, but I believe sufficient diagnosis (I, p. 464.)

"*Resembles cheela, but is much paler; has the throat and breast entirely unbarred. Is the smallest of its genus. Wings varying from* 11″·0 *to* 11″·75."

56.—*Milvus govinda*, Sykes.

Notwithstanding the close look-out that has now been kept since our visit to the Andamans nearly three years ago, by three different collectors, no specimen of the common Kite appears yet to have been met with.

60 *bis*.—Strix De Roepstorffi, *Hume (III, p. 390)*.

There seems no doubt now that this must have been the Owl which Colonel Tytler saw, and which Captain Beavan supposed might be *Syrnium seloputo*, Horsf. There is no reason whatsoever to believe that this latter does occur at the Andamans, or indeed the Nicobars, but the latter have been as yet so perfunctorily worked, that the negative evidence goes, where these are concerned, for much less.

74 *bis A*.—Ephialtes nicobaricus, *Sp. Nov.*

At p. 151, Vol. II, I entered doubtfully a small Scopsowl from the Nicobars as pertaining to the rufous form, as it is generally considered (though I believe it to be distinct) of *Ephialtes pennatus, viz. Scops sunia* of Hodgson.

Having now re-examined the bird, and compared it with specimens of *pennatus, sunia, malayanus, menadensis*, and other similar species, and having carefully studied Mr. Sharpe's catalogue, it appears to me clear that the Nicobar bird is distinct from any species as yet admitted by Mr. Sharpe.

It can be easily described as closely resembling *sunia*, with the whole forehead, crown, occiput, and upper parts generally, together with the sides of the head, throat, and breast, ferruginous chestnut (much more ferruginous than *Sunia* ever is,) with the same white scapular spots, the same white notches on primaries and greater coverts, but with the crown and entire upper surface, more or less freckled and vermiculated with blackish brown, and with the feathers of the ruff on the sides of the neck and across the throat strongly marked with black. The frecklings and vermiculations of the upper surface (which are wanting in *sunia*) are not so dense, and are much coarser than in *malayanus*, and the sides of the head and cheeks are rufous, and not greyish or greyish brown as in this latter.

No specimen of *sunia*, and I have a large series, makes any sort of approach to the markings of the upper surface, which characterise the Nicobar bird. Some very rufous examples of *pennatus* on the other hand do make some approach in the character of their markings on the upper surface to those of the Nicobar birds, but then the very brightest rufous examples of *pennatus* always have more or less of a greyish tinge on the scapulars and tertiaries, and never have the throat and breast and sides of the neck bright rufous. Moreover, the vermiculations and markings on the upper surface in the Nicobar bird are coarser and more sparse than in rufous *pennatus*.

The lower breast, abdomen, and the rest of the lower parts including the *tarsi*, are precisely as in many specimens of *sunia*, and again as in a very rufous *pennatus*.

The dimensions are those of the two last named species.

74 *quint.*—Ephialtus modestus, *Wald.*

Mr. Sharpe who has carefully examined the types of both this species and *E. Balli*, Hume, is of opinion that *modestus* is distinct. He remarks :—" It has been suggested by Mr. Hume that the bird from the Andamans, named *Scops modestus* by Lord Walden, must be the young bird of *S. Balli;* and I confess that, until I examined and compared the types, I entertained a similar impression. Lord Walden, however, having kindly lent me the original specimen of *S. modestus* for examination, I have come to the conclusion that the two species are quite distinct. Lord Walden has two specimens precisely similar; and they seem to me to represent the young of some species of the *S. malayanus* type. Immature they certainly are; but they present too many differences for me to refer them to *S. Balli*. The type of the latter has been lent to me by Mr. Hume; and as the wings and tail in *S. modestus* are doubtless those of the adult bird, I draw attention to the following charaacters, which, as its seems to me, must separate the two; for in no other species of *Scops* is such a difference known between the young and the adult stages :—

Scops Balli, ad. *greater wing coverts* and *secondary quills* dull brown, externally rufous chocolate, with minute vermiculations of black, and a few small notches of fulvous.

Primary coverts nearly blackish brown, vermiculated with rufous chocolate at the tips. Primaries dull brown, rufescent at tips, notched with white on outer web, the interspaces inclining to rufous chocolate.

Tail for the most part rufous, chocolate-like back, with indications of lighter bands, the outer feather externally notched with whitish.

Scops modestus, juv. *greater wing covert* and *secondary quills* alternately barred with sandy rufous and dark brown, the latter bars rather broken up into vermiculations, especially on outer margin; the greater coverts with white spots near the tip of the outer web, not present in the secondaries.

Primary coverts and *primaries* dull brown on inner web, but regularly banded with sandy rufous and dark brown on outer web; some of the primaries with whitish notches.

Tail regularly banded with dark brown and sandy rufous, the dark bars somewhat broken up into vermiculations on the centre feather.

Again, the feathering of the *tarsus* is very different, not extending nearly so far down the leg in *S. Balli* as it does in *S. modestus.*"

81 A.—Ninox scutulata, *Raff.*? N. burmanica. *Sp. Nov.*

It is under Raffles' name that Mr. Sharpe considers that the Nicobar birds should stand. He appears to have seen only one specimen, a female collected at Trinkut with a wing 7″·4. I cannot doubt that this specimen was *affinis*. The larger race that occurs on the Nicobars has the wing about 8″·1 and 8″·4 in males and females, and they should perhaps be placed with the Burmese race; they are much larger, and not at all of the same type as the extreme south of India, Ceylonese, and Straits race. In dealing with these Ninoxes, Mr. Sharpe defines the species as follows:—

Head, grey; much lighter than the back, which is browner; tail, clear grey, tipped with white, the black bands in strong contrast.

a. Axillaries barred with brown and white; breast spots, brown; size, large. Wing 8 to 8·75 inches *lugubris*, Tick.

b. Axillaries uniform orange chestnut; breast spots, chestnut. Size, small. Wing, 6·65 inches *affinis*, Tytler.

Head, dark brown, generally uniform with the back, seldom greyer; tail, dark brown, with blackish brown bars ... *scutulata*, Raffl.: *hirsutus*, Tem.

Lugubris he assigns to the Indian peninsula and the Himalayas. *Affinis*, which is clearly distinct and of which further hereafter, belongs, though Mr. Sharpe does not specifically mention this, equally to the Andamans and Nicobars.

Lastly his *scutulata*, he assigns to the whole of India, Ceylon, Malaiasia, through China to Japan and southwards into the islands of the Malayan sub-region. Thus uniting under this head, the little *malaccensis*, Eyton from the Straits, *japonicus*, and *borneensis*, Bonp., and *florensis*, Wallace.

I myself am very doubtful whether the Indian *lugubris* and *scutulata*, *apud* Sharpe, can be definitely separated. No doubt typical specimens corresponding with Mr. Sharpe's diagnosis may be selected, but many specimens will be found which it is not possible thus to classify.

The points Mr. Sharpe insists on are:—(1) the greyness of the head, much lighter than the back in *lugubris*, and the dark brown head, generally uniform with the back in what he calls *scutulata;* and (2) the pale grey tail, tipped with white in *lugubris*, and the dark brown tail in *scutulata*.

I do not think however, that these distinctions hold good. I have some birds with very dark tails and conspicuously greyer heads; others with very light tails and yet of a generally dark brown upper plumage, and the head darkest of all and not in the least grey.

My impression is that either we must unite Mr. Sharpe's two species *lugubris* and *scutulata*, or that we shall have to divide them into several more species. (1) one for the plains of Central and Northern India, the true *lugubris*, (2) one for Ceylon, Travancore, and the Straits, *hirsutus*, Tem, *which*, if Sumatran specimens prove identical, must stand as *scutulata*, (3) one for Nipal and the Eastern *Himalayas*, *nipalensis*, (4) one for Tipperah, Cachar, and other neighbouring localities eastward, a very large dark form only provisionally designated by me as *innominata*, and (5) one for Pegu and Tenasserim intermediate between this last and *nipalensis* with which the Nicobar birds closely correspond. I shall deal, however, with this question more fully hereafter, at present I merely wish it to be understood that the Cachar birds (*? innominata*, sp. nov.) belong to a very large dark race, the upper surface a nearly uniform deep chocolate brown with the head if anything darker than the rest of the body—while those from the Nicobars like those from Pegu and Tenasserim, are intermediate in size and color between the Cachar form and *nipalensis*, Hodgs.

I am quite ready to make only one species of the lot, but if *lugubris* is to be separated, so also must be, I think, the other races above indicated.

81 *bis.*—*Ninox affinis*, Tytler.

I am afraid Mr. Sharpe's diagnosis of this species, "axillaries uniform orange chestnut, breast spots chestnut, wing 6″·65," will scarcely hold good.

The axillaries are not always uniform, they are sometimes banded with brown, and are pale buff instead of being orange chestnut; the breast spots are not always chestnut, in one specimen they are ferruginous buff, precisely the same color as in specimens of other Indian and Malayan *Ninox*. Lastly, the wing in the male is certainly sometimes as large 6″·9, for I have one specimen of this size, and the wings of the females run to 7″ 4 and 7″ 6, and I entertain no doubt that Mr. Sharpe's *N. scutulata* from the Nicobars (Cat. Vol. II, p. 159,) a female with the wing 7″·4 belonged really to the present species.

82 *ter.*—*Hirundo andamanensis*, Tytler.

Nothing has yet been seen of this supposed species, which I suspect will prove to be nothing but the immature male of the common Eastern Chimney Swallow.

82 *quat.*—Hirundo gutturalis, *Scop.*

Under which name, and not *H. rustica*, as given in my first paper, the Chimney Swallow so common at the Andamans should probably stand.

96.—*Chætura indica*, Hume.

Notwithstanding what has recently been advanced, I must re-express my opinion that this is a good species, differing from *gigantea* (Hasselt) as pointed out, S. F., I, p. 471.

I have now specimens of the true *gigantea*, one killed by Mr. Hough at the extreme south of the Tenasserim Provinces, and two others from near Singapore. They all want the white or whitey brown patch in front, and the whitey brown throat, and have a distinct green and not bluish gloss. Again, they are not nearly so pale on the back as *indica*. I have now compared 4 Javan, 2 Singapore, 1 Malewoon specimen, all of one type, representing as I believe the true *gigantea* with between 30 or 40 specimens of *indica* from Southern India and the Andamans, and I cannot myself see how the adults of the two species can be confounded. The young of *indica* doubtless have the white patch, more or less tinged with brown, but even so, they appear to me distinguishable at a glance.

These birds possess such extraordinary powers of locomotion, that I should not be surprised to hear of specimens of *indica* turning up in Sumatra or the Malay Peninsular as stragglers from the Andaman's, but if the races were not distinct, it is most extraordinary that, out of 37 specimens from India and the Andamans, not one should belong to the *gigantea* type, and that out of 7 from Java and the Malay Peninsular, not one should be of the *indica* type.

118.—*Merops philippinus*, Lin.

I mentioned (S. F., II, p. 162,) that, though seen at the Cocos, and obtained at the Nicobars, we had no record of the occurrence of this species at the Andamans. I have recently obtained specimens killed at Aberdeen (S. Andaman) in November by Mr. De Roepstorff.

130.—*Halcyon atricapillus*, Gm.

This also is a species, which is not quite so rare as I fancied, as I have received altogether some 8 or 10 specimens since my paper was published.

133.—*Ceyx tridactyla*, Lin.

No second specimen appears to have been since obtained from the Andamans, but Mr. De Roepstorff has sent me two specimens which he procured on Kondul, a tiny island immediately adjoining the Great Nicobar.

134 *quat.*— Alcedo Beavani, *Walden*.

Referring to what I said (II, p. 174), I may mention that I have now examined about 26 specimens from the Andamans, and that the only difference that I can discover to be constant between the two sexes is that in the female, the lower mandible is red, a peculiarity shared, however, apparently by the young

male. In one or two females there is just the faintest trace of a reddish tinge at the base of the ear coverts. No single specimen, old or young, has either red cheeks or red ear coverts. This being so, the species cannot be *asiatica*, and we must adopt Lord Walden's name of *Beavani* (olim *rufigastra*). See, for further remarks on the continental representatives of this species, my Travancore paper.

199.—Cuculus canorus, *Lin.*

I have received a specimen of a Cuckoo, killed at the Andamans on the 16th November, which is precisely similar to a great number of others that I have obtained in India, and which in common with most other Indian ornithologists, I have always called *canorus*. These specimens differ only from others obtained in India and from European ones, in their slightly smaller size, and possibly a shade slenderer bills. The present specimen is a female, passing out of the barred stage, the rump and upper tail coverts alone being pure ashy, the feathers narrowly margined at the tips with rufous. The wings are only 7″·97, and the total length 12″·75, but it is of the true *canorus* type, with numerous narrow cross set bars on the lower surface, and not at all of the *striatus*, Drapiez, *canoroides*, Müller (= *canorinus*, Cab. et Hein.), &c., &c., type with the comparatively broad and widely separated bars. This species has not yet been recorded from the Andamans, and must now be entered in our list.

200.—*Cuculus striatus*, Drapiez.

A beautiful adult of this species, quite inseparable from Himalayan examples, was sent me from Port Blair, where it was procured in February. We often *heard* this species in the Andamans, where its melodious double note, "kyphul pukha" is familiar to all, but it was only in the Nicobars that *we* succeeded in securing specimens.

203.—*Cuculus micropterus*, Gould.

As already noticed (III, p. 264), I have received a typical specimen of this species from the Andamans.

235 *bis*.—*Arachnechthra pectoralis*, Horsf.

Comparing a large series of Nicobar specimens, with an equally large series from a number of different localities on the Malay Peninsular, south of Penang, I find that the insular bird runs decidedly smaller, and is of a somewhat darker and greener olive above than the Straits birds.

279.—Dicrurus annectans, *Hodgs.*

I entered this species as *balicassius*, Lin., but it is now admitted that this latter title applies to the Philippine species, and not

to the Malayan or Himalayan forms. Lord Walden has recently remarked (Trans, Z. S. IX. 2, p. 180) that the Malayan race is *Edolius affinis*, Blyth (J. A. S. B., 1842, p. 174,) the Himalayan *D. annectans*, Hodgs. (Ind. Rev., 1837, p. 326), and that he is unable to separate the two.

280 *bis*.—Dicrurus leucogenys, *Walden*.

I entered a young specimen of this species erroneously as *leucophæus*, Vieill; the latter is considered to be exclusively a Javan form, and though when adult closely resembling the young of the present species before the white cheeks of the latter make their appearance, it is a smaller bird, and has the lores dark, whereas the young of the present species has them pale or almost white. It is the young of the present species that Blyth described as *cineraceus*, Horsf., in his description which I quoted, *note* p. 210, Vol. II.

356 *bis*.—*Geocichla albogularis*, Blyth.

At page 495, Vol. II, I noticed that Lord Walden had separated the Andaman Bush Thrush as *G. andamanensis*, and as, though without explaining wherein the difference consisted, His Lordship asserted that it was clear that the Andaman bird belonged to a totally distinct species, I naturally, having no Nicobar specimens to compare, accepted this verdict.

Having now, however, eleven specimens of the Andaman, and four of the Nicobar birds before me, I confess that I should be glad to have pointed out to me wherein this total distinctness consists; to me the birds do not appear to be separable.

First, as to size; the following are the dimensions of the wings of my fifteen specimens:—

Nicobars.		Andaman.	
♂	4″·09	♂	4″·12
,,	4″·2	,,	4″·1
,,	3″·91	,,	4″·2
		,,	4″·4
		,,	4″·01
		,,	4″·05
♀	3″·98	♀	3″·9
		,,	3″·91
		,,	4″·0
		,,	4″·05
		,,	4″·1

Then as to color; this is apparently very variable; no doubt, four out of the six Andaman males have duller colored heads and are paler below and have less white on the throat (in fact, one has no white at all on the throat), than the Nicobar males;

but two specimens have just as much white on the throat as the Nicobar birds, and one has the head and other parts just as brightly colored.

The Nicobar female again has more white on the throat than three out of the five Andaman birds, but two of the Andaman birds have just as much white. The Nicobar bird again has the head and lower parts considerably more deeply colored than four out of the five Andaman birds, but the fifth Andaman bird only differs by a shade.

On the whole it seems to me that all that can be said is that the Nicobar birds, as a body, are more deeply colored and have more white on the throat than the Andaman birds; but looking to the fact that this distinction is by no means absolutely constant, and that it is not accompanied by any perceptible difference in size, I do not think that this is sufficient to warrant specific separation, and I cannot therefore now concur in the propriety of separating the Andamanese bird under Lord Walden's title of *G. andamanensis*.

520 *bis*.—Locustella lanceolata, *Tem.*

I am now disposed to think that my *L. subsignata*, really may be, as stated by Lord Walden, identical with Temminck's bird.

The entire tone of coloration is quite different from that of a specimen obtained on the Attaran river in Tenasserim, and which was pronounced by Messrs. Sharpe and Dresser to be probably the true *lanceolatus*, but I have since obtained numerous specimens further south in the Tenasserim provinces, corresponding well with the Andaman species, and I am disposed to think that either the Attaran specimen is not the true *lanceolatus*, or that it is in very different stage of plumage. It is well known how these *Locustellas* vary in plumage according to season; this is most conspicuous in the case of *L. Hendersoni*, Cassin. The only difficulty here is that the Attaran specimen and others killed in the Andamans and in the extreme south of Tenasserim, were killed in the same month, and yet differ as widely in plumage as does *Hendersoni* immediately after the autumn moult and during the breeding season.

On the whole, I think, the Andaman bird must stand as *lanceolata*, and the question of the identity or otherwise of the Attaran bird must be left to future investigation.

556 *bis*.—Phyllopneuste borealis, *Blas.*

Lord Walden, *Ibis*, 1874, p. 140, records a specimen of this species from the South Andamans. I myself have only seen the nearly allied *P. magnirostris* from these islands. *Borealis* is very like *magnirostris*, but greyer about the neck and breast, with more pointed wings and a small first primary as in *sibilatrix*.

590.—*Motacilla luzoniensis*, Scop.

I admitted this species into my list with some doubt, no specimens having been procured of late years. Now at last however Captain Wimberley has procured a single specimen near Port Blair in February. It is a female, with the very dark grey of the back patched, or beginning to be mottled with black. Captain Wimberley informs me that this is the only specimen he has ever seen.

631 *ter.*—*Zosterops nicobariensis*, Blyth.

I have carefully re-examined two large series of this supposed species, one from the Andamans, and the other from the Nicobars. In the great majority of specimens the bills of these insular birds are longer and conspicuously broader at the base than in the continental *palpebrosus*. In some specimens the difference in size is so marked and conspicuous that no one would hesitate to separate *nicobariensis* as distinct, but out of the large series two are, as far as I can see, absolutely inseparable from *palpebrosa*, and in at least one-fourth of the specimens, the difference of size is inconsiderable.

As regards color I do not think that they can be safely separated; no doubt, a good many of the insular birds do have the upper surface somewhat greener, but others correspond in this respect with continental specimens. Whether under these circumstances the species should be maintained as distinct, is entirely a matter of opinion; personally I am not disposed to think that it should be separated. This is just one of those cases in which the trinomial nomenclature (which I am confident our successors will adopt) would be so convenient.

The name *Zosterops palpebrosa nicobariensis* would exactly fit the case.

701 *ter.*—Munia fumigata, *Walden.*

The Andaman race of *M. striata*, which I described, II, p. 257, under the name of "*non-striata*," must stand as above. The Nicobar race, which is quite as distinct from the Andaman one as is this latter from *striata* must, if separated at all, stand under my name "*semistriata*," under which I characterized it, *loc. cit.*

720.—Emberiza pusilla, *Pall.*

As already noticed (II, p. 497), this species has to be included in the list. It was obtained near Port Blair by Lieutenant Wardlaw Ramsay.

730 *ter.*—*Carpophaga insularis*, Blyth.

This species must begin to lay at the end of December. On the 12th February Mr. De Roepstorff shot a young bird

fully fledged and nearly full sized, only showing here and there a little of the yellow nestling hair at the ends of the feathers.

780 *quat.*—*Carpophaga palumboides*, Hume.

I find that this species is tolerably common, at any rate at certain seasons, both at the Andamans and Nicobars. We have had a great many specimens sent up from both groups, varying from the type of specimen figured in the *Ibis* as *palumboides*, with the very white head and neck to the type later described as *Janthenas nicobarica* by Lord Walden. There is really no doubt now (see also II, p. 498, and III, p. 327) that this latter is merely one stage of plumage of the present species.

797 *bis.*—Turtur humilis, *Tem* (vera); *T. humilior*, Hume (II, p. 269; III, p. 279.)

It is a very curious thing that, though we have now procured five females of this species, all presenting the same distinctive characteristics, no male has yet been met with. All the specimens as yet obtained have been procured in the immediate neighbourhood of Port Blair.

Lord Walden in his recent valuable paper on the birds of the Philippines has pointed out what to me at any rate was quite unknown, *viz.* that the Red Turtle Dove, of Luzon, S. China to Shanghai, Formosa, Hainan, and Cambodia, differs from that of India which we have hitherto called "*humilis*" in being of a much darker red, and in having the under-wing coverts dark ash instead of pale ash inclining to white, and the head uropygium, and upper tail coverts much darker ash. He adds:—"The Indian bird will have to take the title of *Turtur tranquebarica*. Hern. Obs. Zool. p. 200, 'ex Tranquebaria' (1804), while for that of Luzon, it will perhaps be best to retain Temminck's title, although he does not make it quite clear whether he described and figured a Bengal or a Philippine individual."

Although Temminck doubtless says "*on trouve cette espece en Bengale et dans l'ile de Luçon*," I think that the dimensions he gives "*Environ neuf pouces*," which is equivalent to 9·87 English inches, show that it was the non-Indian race that he was describing. No specimen of the Indian form which we must now call *tranquebarica* that I have ever seen, has reached this dimension even in the flesh; 9″·25, with a wing of 5″·2, is the average of five adult males of the Indian species; on the other hand the other species seems to run to nearly 10, with a wing of 5″·5 or even larger, so that to my mind there is no doubt that Temminck's name should be retained for the larger, darker, and darker under-wing-coverted Eastern species.

If, however, it should ever be proved that Temminck's description was taken from an Indian specimen, then I think that probably my name *humilior* will have to be adopted for the Eastern race.

Although no males of the species have been procured at the Andamans, we have procured a whole series, males and females of the same species, from the Pakchan Estuary, Tenasserim, Tavoy, Rangoon, and Akyab, all of which present the same characteristic differences as compared with the Indian bird, that the Luzon and South China bird does, and I have no doubt whatsoever that these all belong to the Philippine species. If this be so, then for the present at any rate the Andaman bird must stand as *humilis*, the nearly allied Indian species taking as above the name of *tranquebarica*.

834 *ter.*—*Turnix albiventris*, Hume (II, p. 281.)

Other specimens which have come to hand of this little Quail leave me no doubt as to its distinctness, though it must be admitted that the name was not happily chosen.

847.—*Ægialitis mongolicus*, Pall.

It is most extraordinary, in fact almost incredible, but I cannot avoid the conclusion that this species must breed in the Andamans. I have birds shot in the neighbourhood of Port Blair in May, July, and September which appear to me to be unquestionably nestlings. The whole of the feathers of the head, back, scapulars, wing coverts, are broadly fringed with light buff; the central tail feathers similarly margined and tipped; the white of the face, the sides of the neck, and the entire breast and upper abdomen suffused with buff. This is not a bit like the birds in breeding plumage which I have from Central Asia, and also from various parts of India shot just before their departure, and they appear to me to be birds just newly fledged. One was shot in May, three in July, and three in September. The September birds having mostly less of the fulvous tippings. I can account for these specimens in no other way than by supposing that some few of the birds remain to breed at the Andamans. This appears to be in a high degree improbable, but I do not see my way to any other conclusion.

858 *bis.*—*Esacus magnirostris*, Geoffr.

This species does not appear to be very uncommon at the Andamans. I have had several specimens sent me from near Port Blair and Port Cornwallis; we got specimens at the Cocos; the birds were also seen and an egg taken at Corbyn's Cove, and a specimen was also seen at Macpherson's Straits, so that it occurs throughout the Andaman group from north to south, but has not as yet been observed at the Nicobars.

881 *bis.*—Tringa crassirostris, *Tem and Schl.*

Is another species obtained near Port Blair by Lieutenant Wardlaw Ramsay.

913 *bis.*—Hypotænidia obscuriora, *Hume* (S. F., January 1874, p. 302, *H. ferrea*, Walden, *Ibis*, April 1874, p. 147.)

Having now had the opportunity of comparing over twenty specimens of the Andamanese Rail with fully double that number of specimens of *striata* from very numerous localities in India, Burmah, and the Malay Penisular, I believe that no doubt can exist as to the specific distinctness of the insular form.

At p. 389, Vol. III, I described a supposed new Rail under the name of *Hypotænidia abnormis*. No further specimens of this have come to hand, and I have a conviction that it will turn out to be an abnormal variety of *obscuriora*, probably a nearly adult bird, that, as an accident, has not put on the normal white banding of the upper surface.

951.—*Nettapus coromandelicus*, Lin.

This species turns out to be not very uncommon in the Andamans, and a good many specimens have been sent to us.

983.—Gelochelidon anglica, *Mont.*

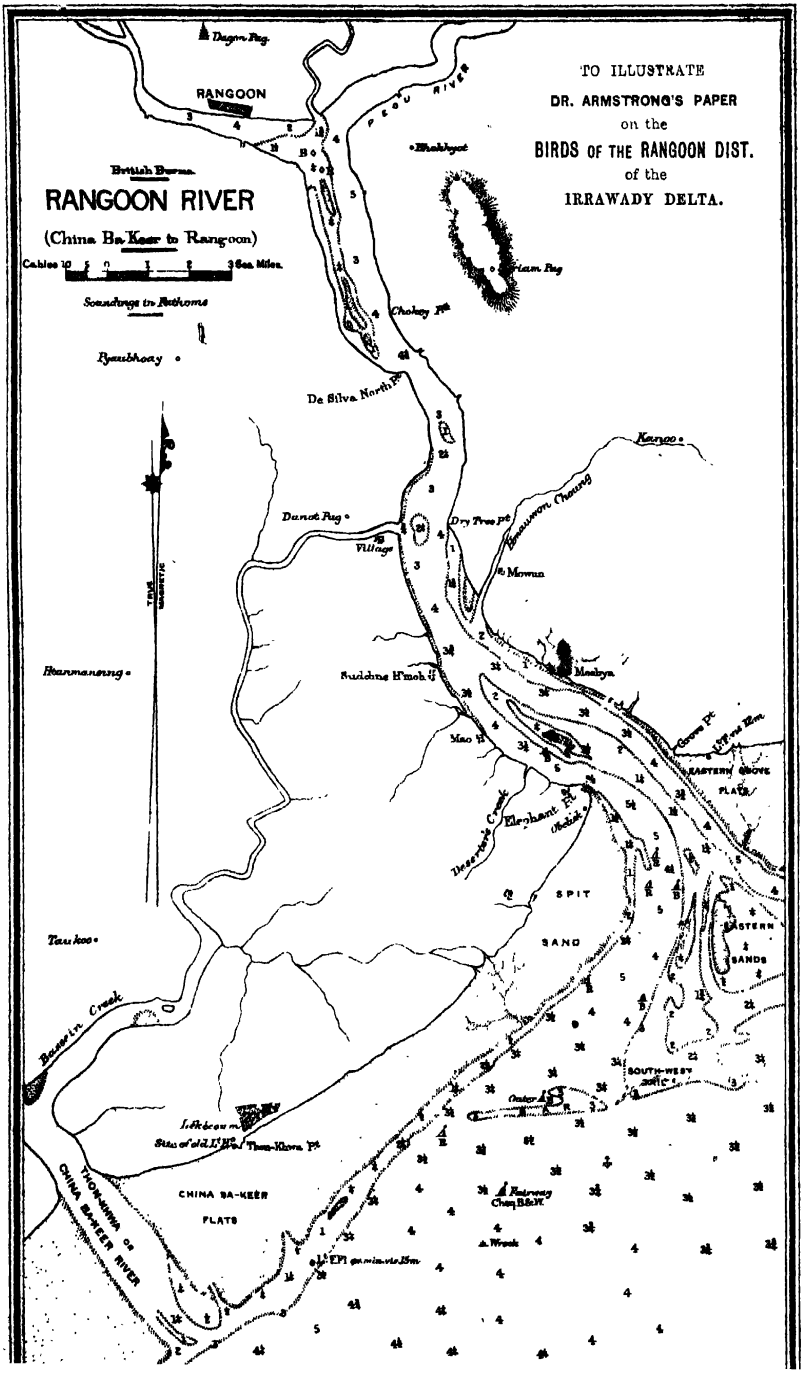
This is another species new to these islands. It was killed by Captain Wimberley, in the S. Andamans, in November, and is, he says, the only one he has seen. The specimen is a rather small young female, the primaries very dark, the wing only 11″·5; tarsus, 1″·1; bill at front, 1″·5.

986 *ter.*—Sterna Dougalli, *Mont.*

Though not apparently a constant resident, or even a regular visitant to the Andamans, this species occurs there from time to time in large flocks, so much so that during the last 18 months I have seen fully 50 specimens.

The bills vary in color according to season. In birds killed in April they are blackish, in May they begin to change to orange red at the bases. In June only the terminal portions are blackish dusky, and in July the whole of the bill has become red or orange red. (*vide ante* note, p. 246.)

A. O. H.


TO ILLUSTRATE
DR. ARMSTRONG'S PAPER
on the
BIRDS OF THE RANGOON DIST.
of the
IRRAWADY DELTA.
British Burma.
RANGOON RIVER
(China Ba-Keer to Rangoon)
Soundings in Fathoms
RANGOON
PEGU RIVER
Dagon Pag.
Shabbyat
Siam Pag
Cheleay Pt.
Ryaukhoay
De Silva North Pt.
Kangoo
Danok Pag
Village
Dry Tree Pt.
Mowun
Maubya
Hanmanaung
Sudchna H'mok
Mao Pt.
Elephant Pt.
Deserted Creek
EASTERN GROVE
PLATE
SPIT
SAND
EASTERN SANDS
SOUTH-WEST
Outer
Taukoo
Bassein Creek
Thon-khwa Pt.
CHINA BA-KEER
PLATE
THON-KHWA or
CHINA BA-KEER RIVER
Wreck

Notes on some Birds collected in the Eastern or Rangoon District of the Irrawaddy Delta.

By James Armstrong, B.A., M.B., &c.

From the latter end of November until the beginning of March, my duties, as officer in medical charge of the Marine Survey of India, enabled me to devote a portion of my time to the study of the avi-fauna belonging to the Rangoon district of the Irrawaddy delta. During this period, so far as I was able, I have made short notes upon the habits of the birds collected, and have carefully recorded in the flesh the different dimensions of each species met with, in the hope of being able to add something to the general store of ornithological facts.

Before giving a detailed account of the different species found to frequent this district, I shall first endeavour to convey a rough idea of the region in which they were collected.

By reference to the map it will be seen that the Rangoon river, after its junction with the Pegu, forms the eastern boundary of the Irrawaddy delta, and that at some distance to the westward a second large stream pours out its waters into the Gulf of Martaban. This stream is called the China-Ba-keer river, and has for a considerable portion of its terminal length a direction more or less parallel with the Rangoon river, with which it is connected at irregular intervals by several large channels or creeks, extremely tortuous in their course, and all mainly depending for their depth of water upon the condition of the tides.

Between the mouths of the Rangoon and China-Ba-keer rivers, is enclosed a district of about five and twenty miles in extent, of which the main feature is its perfect flatness, without the slightest hill or smallest elevation to be seen on any side. Yet, notwithstanding its uniformity in this respect, it possesses a great diversity in the character and amount of its vegetation. Swamps and jheels, open waste ground and ploughed lands, forest country and thin tree-jungle, are all to be met with.

Throughout this region the great majority of the collection, which forms the subject of the following notes, was made. Some few specimens were also collected from the immediate vicinity of Rangoon, and others from the region about Eastern Grove, which forms the eastern boundary of the Rangoon river near its mouth. Several birds were also obtained from the neighbourhood of Syriam, a small town and district situated near the eastern bank of the Rangoon river, close to its junction with the Pegu.

In the Syriam district alone there are a few slight hills and rising grounds, the highest attaining an elevation above the surrounding level of perhaps 150 or 180 feet. These hills are, for the most part, clothed with forest trees, consisting chiefly of various species of figs and acacias, which furnish an abundant supply of food to the numerous birds which frequent them. Several species of Squirrels, too, are to be met with: *Sciurus Phayrei*, Blyth, *Sciurus ferrugineus*, Cuv., and *Sciurus chrysonotus*, Blyth, all occur here in tolerable abundance.

It only remains now to say a few words upon the zoology and physical features of the country which intervenes between Elephant Point at the mouth of the Rangoon river, and the village of China-Ba-keer, similarly situated with regard to the river of the same name.

The marine zoology of this district is extremely small and scanty. The great rapidity of the tides, the brackishness of the water, and the immense amount of mud and fine sand, which is held in suspension by the water, and is constantly being deposited by subsidence on the bottom, are the factors which most powerfully co-operate to prevent the development and retard the growth of the marine fauna in this locality.

The littoral fauna, on the contrary, is abundant. Along the entire length of the coast line, between Elephant Point and China-Ba-keer, there are immense mud flats, varying from half to three or four miles in width, which at low tides are left uncovered, and swarm with different kinds of crabs and small mud-fishes. These banks afford rare feeding-grounds to multitudes of Stints, Plovers, Herons, and other shore birds, which congregate upon them.

Fringing this long stretch of mud (which, by the way, is very soft, and without some special contrivance impossible to traverse) is a very gently sloping beach, varying in width from fifty to several hundred yards, and entirely composed of fine white sand. This zone of sand swarms with a crimson stalk-eyed crab, *Ocypode platytarsis*, which exists in such numbers at certain points, as to give the beach the appearance of an extended surface of crimson. As one approaches this crimson expanse, a very curious effect is produced by the sudden disappearance of the color along the margin, caused by the instantaneous withdrawal of the crabs into the holes, which they burrow for themselves in the sand, and from which they never appear to wander for more than a few feet.

At intervals along the shore the continuity of this sandy beach is interrupted by mangrove swamps, which sometimes extend out to a considerable distance into the mud, and are always completely covered at high water. A few miles distant from

Elephant Point, the jungle in these swamps consists almost exclusively of a tall willow-like tree, *Sonneratia apetala*, which appeared to be a favorite resort for several species of King-fishers and Wood peckers. With the exception, however, of this solitary patch of *Sonneratia*, the tidal jungles were mainly composed of such plants as *Ceriops Roxburghiana*, *Acanthus ilicifolius*, and various species of mangroves.

Beyond the sandy beach in the neighbourhood of Elephant Point, the country is under cultivation, and, with the exception of a few isolated clumps of trees, hedges, and small patches of thin tree jungle and scrub, it is quite open. At a little distance to the westward, however, cultivation ceases, and for several miles along the shore, a dense low jungle comes down quite close to the beach. Sometimes at very high spring tides this jungle is completely flooded for several miles inland. It is composed mainly of low-growing trees and shrubs, such as *Hibiscus tiliaceus*, *Clerodendron inerme*, *Derris scandens*, *Grewia microcos*, *Glycosmis pentaphylla*, *Jasminum scandens*, *Flagellaria indica*, and others, amongst which very few birds indeed are to be found.

About midway between Elephant Point and China-Ba-keer, this low jungle is found to pass abruptly into an open grass covered country, which continues almost up to China-Ba-keer, and is in a few places irregularly dotted with hedges and scrub. Inside this open grass land, there are broad belts of evergreen forest, running more or less parallel to the shore, and in many places rendered quite impenetrable by the Liliana-like creepers and thick thorny underwood beneath.

In addition to all these varieties of country, numerous swamps and jheels of varying extent are to be met with at intervals. Some of these are quite open and clear, or at the most only fringed with weeds, but the greater number are completely covered with aquatic plants, and are the favored haunts of numberless Herons and other water birds.

In conclusion I have to convey my warmest thanks to the editor* of "STRAY FEATHERS," to whom I am indebted for the identification of all the specimens collected, and without whose kind assistance the present paper could not have been written.

34.—Spizaetus caligatus, *Raffles.*

This appears to be a rare species. I only saw a single specimen which I shot near China-Ba-keer in December. It was

* I have added a few notes at Dr. Armstrong's request, as also references to previous passages in S. F., in which birds mentioned and not included in Dr. Jerdon's work, will be found described.—A. O. H., Ed.

perching upon one of the lower branches of a large tree overhanging a jheel, from whence it appeared to be watching for frogs or fish. It was a male, and gave the following measurments in the flesh :—

Length, 26·2; expanse, 51·5; tail from vent, 12·1; wing, 16·8; tarsus, 4·25; bill from gape, 1·85.

The irides were light yellowish brown; cere and bill, dusky black; feet, light yellow; toes, with three or four very large scutella at base of claws; claws, black.

41.—Polioætus ichthyætus, *Horsf.*

This species appeared to be scarce. I have not been able to identify it along the coast line, although it is not improbable that it occurs there along with *Cuncuma leucogaster*. I have only shot a single specimen at a considerable distance up the Rangoon river, where the white-bellied Sea Eagle does not appear to extend to. It was an immature female, killed on the 23rd of January, and gave the following measurements recorded in the flesh :—

Length, 28; expanse, 61; tail from vent, 12·2; wing, 18·2; tarsus, 3·55; bill from gape, 2·2.

The irides were light yellowish brown; cere, slaty grey; bill, dark dusky slate color, lighter towards base; legs and feet, thick, coarse, and strong, and of a dirty light yellow color; claws, black.

[This specimen is in the lineated stage.—A. O. H.]

43.—Cuncuma leucogaster, *Gmel.*

The white-bellied Sea Eagle was to be met with, though sparingly, all along the coast from Elephant Point up to China-Ba-keer. It was not unusual to see a pair or more of these birds high up in the air, and far out of the reach of shot, wheeling and circling round and round, with a peculiarly easy and graceful flight. It was very seldom indeed that one would come within shooting distance, so that it was a matter of considerable difficulty to obtain specimens. I killed one male bird at China-Ba-keer, of which the following are the dimensions in the flesh :—

Length, 27·75; expanse, 71; tail from vent, 10·5; wing, 22; tarsus, 3·7; bill from gape, 2·25.

The irides were light brown; cere and gape, leaden grey; upper mandible, dusky brown, shading into a greyish blue towards its junction with the cere; lower mandible, bluish grey, tipped with dusky brown; legs and feet, dirty yellowish white; claws, black.

48 *ter.*—Poliornis liventer, *Tem.* (*vide S. F., III, p.* 31.)

This species is by no means very uncommon in the immediate vicinity of Elephant Point, where it frequents the extensive paddy-fields in that locality. These birds may be often seen in the early morning coursing along with a graceful swooping flight from one field to another, never rising to any height, but generally flying quite close to the ground, and when tired, settling down to rest on the slightly elevated boundaries between the fields. They are particularly wary and difficult to approach. The following are the dimensions recorded in the flesh of a fine male bird killed at Elephant Point:—

Length, 15·8; expanse, 37·75; tail from vent, 6·5; wing, 11·5; tarsus, 2·6; bill from gape, 1·4; mid toe and claw, 2·05.

The irides were of a beautiful lemon yellow color; cere, orange; both mandibles, orange yellow, tipped with dusky brown; legs and feet, bright yellow; claws, dusky black.

53.—Circus melanoleucus, *Gmel.*

This bird was abundant in the neighbourhood of Rangoon, and was likewise numerous in suitable localities between Elephant Point and China-Ba-keer. Like *Poliornis liventer* it seemed to prefer hunting for its prey over the rice-fields and open waste ground. I shot three birds which, although differing very much *inter se* in coloration, are all referred by Mr. Hume to this species. The following are their dimensions recorded in the flesh:—

Adult male.—Length, 18·5; expanse, 41·75; tail from vent, 8·5; wing, 14; tarsus, 3·05; bill from gape, 1·2; mid toe and claw, 1·75. Irides, bright yellow; cere, dark slaty grey; bill, dusky black; legs and feet, chrome yellow; claws, black.

Male, juv.—Length, 18; expanse, 40; tail from vent, 8·5; wing, 13·5; tarsus, 3·1; bill from gape, 1·25; mid toe and claw, 1·75. Irides, yellow; cere, slaty greenish grey; bill, dusky black; lower mandible, lighter colored near base; legs and feet, orange yellow; claws, dusky black.

Female, juv.—Length, 18·75; expanse, 43·25; tail from vent, 8·6; wing, 14·4; tarsus, 3·25; bill from gape, 1·25; mid toe and claw, 1·85. Irides, light brownish yellow; cere, slaty greenish grey; bill, dusky black; legs and feet, orange yellow; claws, black.

56 *ter.*—Milvus affinis, *Gould.*

This species was met with everywhere, but was abundant only in the vicinity of villages. I observed a single pair breeding in the middle of January. They had their nest in

the fork of a large acacia tree, growing close to the shore at Eastern Grove, several miles distant from the nearest village. The female was sitting on her nest, but I shot the male as he was flying around. The following measurements were recorded in the flesh:—

Length, 25·2; expanse, 52·5; tail from vent, 12·5; wing, 17·5; tarsus, 2·5; bill from gape, 1·8.

[The only specimen preserved by Dr. Armstrong should, in my opinion, rather be classed as *M. govinda*, Sykes. It is a male, with a wing, 17·5.—A. O. H.]

60.—Strix indica, *Blyth.*

I have only met with the Indian Screech Owl at Elephant Point, where it was by no means abundant. I killed two specimens there amongst some tall densely foliaged trees whither for several evenings I had observed them to resort. The male bird was somewhat larger than the female, and measured in the flesh:—

Length, 14·8; expanse, 39·75; tail from vent, 5·2; wing, 11·5; tarsus, 2·75; bill from gape, 1·7.

Female.—Length, 14·5; expanse, 38·25; tail from vent, 4·7; tarsus, 2·75; bill from gape, 1·75; wing, 11.

In both sexes the irides were deep brown; bill, yellowish white; cere, pinkish white; legs and feet, dusky yellowish brown; claws, horny brown.

72.—Ketupa ceylonenis, *Gmel.*

This handsome Owl was tolerably abundant in the thin forest jungle surrounding the different jheels lying between Elephant Point and China-Ba-keer. The following are the dimensions recorded in the flesh of female birds shot at Elephant Point:—

Length, 21·5 to 22·15; expanse, 46·75 to 49·5; tail from vent, 7·5 to 7·75; wing, 14·9 to 15·7; tarsus, 3·15 to 3·2; bill from gape, 2·25 to 2·3.

The irides were bright golden yellow; the bills horny or slaty grey; the legs and feet were dirty yellow; and the claws dusky brown.

72 *bis.*—Ketupa javanensis, *Less.*

The Malay Fish Owl was abundant in the jungle bordering the numerous creeks which flow into the Rangoon river near its mouth. Just after sun-set these birds begin to issue from the surrounding jungle, and with a powerful, though somewhat heavy flight, hunt for their prey up and down along the course of the creek, resting now and then in some adjacent

mangrove. The following are the dimensions recorded in the flesh of a male bird shot in Deserter's Creek :—

Length, 19; expanse, 46·5; tail from vent, 6·8; wing, 13·9; tarsus, 2·95; bill from gape, 1·95.

The irides were light yellow, cere, dark slate color; bill, dusky; legs and feet, dusky yellowish brown.

[This species is not included by Dr. Jerdon, and has not yet been described in "STRAY FEATHERS."

The dimensions are very variable, but I cannot yet satisfy myself that there is any constant difference in the dimensions of the sexes, though I have twelve specimens before me from Johore, Malacca, Pak-Chan, Tenasserim, Amherst, and Rangoon.

Taking the two sexes together, the dimensions recorded in the flesh vary as follows :—

Length, 17·75 to 19·25; expanse, 46 to 48; tail from vent, 6·25 to 7; wing, 13·25 to 14 (a very young bird has the wing 12·75); tarsus, 2·6 to 2·95; bill from gape, 1·65 to 2; weight, 1·75 to 2·25 lbs.

In the adult the colors appear to be as given above by Dr. Armstrong. In the young birds the legs and feet appear to be a pale dirty green, or dirty greenish white. The bill and cere, dark plumbeous horny; the gape and the tip of the lower mandible, whitish; in one young bird, however, the bill was plumbeous blue, yellowish horny at tip, and the cere, greenish blue. At all ages the irides appear to be yellow.

The feathering of the tarsi varies a great deal in different individuals. This may possibly be partly due to age, but I have not been able to satisfy myself of this fact. In one specimen the whole tarsus and tibio-tarsal articulation, except just in front, are quite bare; in another a very narrow tongue of feathers runs down the front of the tarsus for about three quarters of an inch; in another again, no portion of the tibia even at the back is bare, the whole of the front and sides of the tarsus is feathered at the joint, and from this a broad triangular patch of feathering runs downward for fully an inch from the joint, terminating, of course, in a point on the front of the tarsus.

The whole lower surface in the adult is a uniform clear buff, the chin only and a large patch at the base of the throat, white; all the feathers with narrow linear blackish brown shaft-stripes, always broadest on the breast, and the thigh coverts unstreaked. The breadth of the streaking on the lower surface varies very greatly in different specimens. In the very young birds the broadest streak barely exceeds 0·15; in some birds, apparently of intermediate age, some of the stripes

on the breast are fully 0·3; while again, in what I take to be the oldest adults, the broadest breast stripes do not exceed 0·15. These differences, however, may perhaps be individual. Anyhow where the breast stripes are broadest, there the stripes of the rest of the lower parts are most strongly marked; and where the breast stripes are very narrow, there the stripes are almost obsolete on the lower abdomen, flanks, and lower tail coverts.

The ear-tufts are very long. In some specimens nearly three inches in length. These, with the whole of the feathers of the head, upper back, and interscapulary region, are dark, almost blackish brown, margined with buff. The width of these margins varies greatly in different specimens, as does also the tint; in some they are a clear pale buff, and in others redder and more ferruginous; and, I should perhaps here note, that in some specimens the under-surface also has a decided rusty tinge, especially on the breast.

The scapulars and lesser wing coverts are somewhat similar to the feathers of the nape and upper back, but they mostly want the buff edgings, though paling in patches towards the margins, and they are more or less distinctly characterized by imperfect, transverse yellowish-white bars, which in many specimens are reduced to moderate-sized spots, one on either web.

The rump and upper tail coverts vary extraordinarily in different specimens, but typically they are buffy, or buffy-brown, or fawn brown, with a dark brown patch at the tips, fringed marginally with buff, and with a few paler spots here and there, representing more or less imperfect transverse bars. The tail feathers are deep brown, more or less broadly tipped with yellowish or buffy white, and with, in the adult, three transverse bars of the same color, the third of which is partially hidden by the upper tail coverts; but some specimens, apparently adult, also have four such transverse bars, in which case it is the fourth which is partially hidden by the tail coverts; and one quite young bird, clearly the youngest specimen I have, has five such bars, besides the pale tippings.

The quills and their greater coverts are dark brown, broadly banded and tipped, paler on both webs, the banding on the outer webs and tippings being yellowish white, pale buff, or bright buff, and on the inner webs being a pale greyish or yellowish brown. The size and color of all these markings varies in every individual, but the banding is always, I think, broadest on the primaries, and narrowest on the tertiaries.

The lores are densely clad with large bristle-like feathers, paler, indeed sometimes whitish, at their bases, blackish for

more or less of their terminal portions. The cheeks and ear coverts are a dull rusty buff, sometimes very ferruginous, and generally darker shafted, at any rate towards the tips.

One very young bird has the whole of the upper parts very similar to the lower parts, each feather with a narrow blackish brown shaft stripe; only two or three feathers of the head, and a few of the scapulars with broad dark brown centres as in the adult.

As pointed out by Mr. Sharpe (Cat. II, 4). both *flavipes* and *javanensis* are distinguished at once from *ceylonensis* by the absence of the hair-line transverse bars on the lower surface, which give these parts in *ceylonensis* a vermiculated appearance, while from *flavipes*, the present species is at once distinguished by its smaller size, the wing probably never exceeding 14·5, while in *flavipes* it probably never falls short of 18 inches.—A. O. H.]

81.—Ninox scutellatus, *Raffles, apud Sharpe.*

I found this species abundantly amongst the clumps of trees and thin jungle near the shore at Elephant Point, where they appear to feed principally upon a species of crab, *Ocypode platytarsis*, which occurs in immense profusion upon the lands in that locality. I found the debris of these crabs in the stomachs of nearly all those which I examined. There does not appear to be any important difference in size between the two sexes. The following are the dimensions of six specimens recorded in the flesh:—

Length, 11·5 to 13·5; expanse, 24·75 to 28; wing, 8·2 to 8·7; tail from vent, 5 to 5·5; tarsus, 1 to 1·25; bill from gape, ·9 to 1·1.

The irides were bright yellow; cere, dark slaty green; bill, dusky black, margined with greyish; legs and feet, dusky yellow; claws, horny brown.

[I have adopted Mr. Sharpe's nomenclature for these specimens, but as fully explained in my Travancore paper, I do not consider these Burmese birds to be the true *scutellatus*. Rafl.—A. O. H.]

82.—Hirundo rustica, *Lin.*

This was the only Swallow I met with, and it occurred in the greatest abundance everywhere. At Elephant Point along the shore vast swarms were always present, roosting at night on the sands a little above high water mark. Male birds measure somewhat more than females. The following is a *resumé* of the dimensions of both sexes recorded in the flesh:—

Males.—Length, 5·75 to 6·3; wing, 4·45 to 4·75; tail from vent to end of outer feathers, 2·75 to 3·5; to end of mid feathers,

1·8 to 2·1 ; tarsus, ·42 to ·46 ; bill from gape, ·55 to ·6 ; at front ·3 ; width at gape, ·52 to ·6.

Females.—Length, 5·25 to 5·6 ; wing, 4·3 to 4·5 ; tail from vent to end of outer feathers, 2·5 to 2·6 ; to end of mid feathers, 1·8 to 2·1 ; tarsus ·43 to ·44 ; bill from gape, ·55 to ·57 ; at front, ·3 ; width at gape, ·45 to ·47.

In both sexes the irides are deep brown ; bill, legs, feet, and claws, dusky black.

[This is the smaller race generally now separated as *gutturalis*.—A. O. H.]

117.—Merops viridis, *Lin.*

The common Indian Bee-eater was very generally distributed ovre every portion of Southern Pegu which I visited. It was especially abundant at the mouth of the Rangoon river, and from there all alcng the coast up to China-Ba-keer, where hundreds might be seen perched upon the dead bushes and drift wood washed up along the margin of the shore just above highwater mark. They were here wonderfully tame, allowing me to get within two or three yards of them before they would attempt to fly away. The following is a *resume* of the dimensions of several specimens recorded in the flesh :—

Length, 9 to 9·5 ; expanse, 11·5 to 12·1 ; tail from vent, 3·7 to 3·8 ; wing, 4·6 to 5·2 ; tarsus, ·35 to ·4 ; bill from gape, 1·3 to 1·45.

Irides, deep red ; bill, dusky black ; legs and feet, greyish black ; claws, horny brown.

[The whole of the specimens belong to the rufous crowned and naped race separated as *ferrugineiceps*.—A. O. H.]

118.—Merops Daudini, *Cuv.*

This species, though tolerably abundant in certain localities was by no means general in its distribution. I have only met with it in a tidal swamp a few miles from Elephant Point, and also along the course of Deserter's Creek. In this latter locality it was met with in tolerable abundance, more especially where the margins were bordered with tall *Sonneratia* trees. Here numbers of this species might be seen making wide circles, with a strong rapid flight at a great height up in the air, and again returning to perch on the summits of these trees, where they would remain for a moment or two before starting on a fresh expedition. They kept, as a rule, to the highest trees, and were very wary and difficult to approach. A male bird shot near Elephant Point measured in the flesh :—

Length, 12·1 ; expanse, 15·6 ; tail from vent, 5·5 ; wing, 5·45 ; tarsus, ·5 ; bill from gape, 1·95.

The irides were deep crimson; bill, black; legs and feet, dusky greyish black; claws, horny brown.

119.—Merops Swinhoei, *Hume.*

The Chesnut-headed Bee-eater occurred very sparingly in Southern Pegu. During the months of November, December, and January, I did not meet with any specimen of this species, but during the latter end of February I saw several pairs near Elephant Point. They were all remarkably shy, and when disturbed flew away quite out of sight. A male bird shot in the vicinity of Elephant Point measured in the flesh :—

Length, 8·75; expanse, 12·5; tail from vent, 3·5; wing, 4·2; tarsus, ·4; bill from gape, 1·65.

Irides, crimson; bill, black; legs and feet, dusky pink; claws, brownish.

124.—Coracias affinis, *McClell.*

This bird, without being numerous anywhere, was universal in its distribution over the entire district. Wherever there were clumps of trees, bushes or hedges in open cultivated or waste ground, this species might be seen perching usually upon some dry leafless branch or twig. It was, however, excessively wary, so that it was not always easy to procure specimens. The following is a *resumé* of the dimensions of several specimens recorded in the flesh :—

Length, 12·5 to 13·75; expanse, 22·5 to 13·7; tail from vent, 5 to 5·3; wing, 7·2 to 7·5; tarsus, 1·0 to 1·15; bill from gape, 1·6 to 1·8.

Irides, light red; bill, black; legs and feet, ashy grey; claws, black.

128.—Pelargopsis amauroptera, *Pearson.*

This handsome King-fisher was by no means abundant anywhere. I have only met with it amongst the mangrove jungle which borders the margin of the larger creeks, flowing into the Rangoon river near its mouth. It is very shy and difficult to approach, and when disturbed, flies away with a harsh cry into the thickest jungle it can find. Male birds appear to be somewhat larger than the females. The following are the dimensions of three specimens shot on the banks of Deserter's Creek :—

Length, 14·5 to 5; expanse, 20·3 to 20·7; wing, 5·7 to 6; tail from vent, 4·1 to 4·4; tarsus, 0·6 to 0·7; bill from gape, 3·3 to 3.7..

The irides vary from light to deep brown; the eyelids are margined with orange beading; gape, deep salmon or orange

red; bill, bright vermilion, tipped with dusky; legs and feet, orange red; claws, dusky black.

129.—Halcyon smyrnensis, *Lin.*

This species was universally distributed over the entire district, and tolerably abundant everywhere. It was found in low jungle, and thin forest in open ground as well as along the margins of all the nullahs and streams in the vicinity. The following are the dimensions recorded in the flesh of ten specimens from Elephant Point, China-Ba-keer, Deserter's Creek, Rangoon, Syriam, and Eastern Grove:—

Nine Males.—Length, 10·7 to 11·5; expanse, 14·25 to 15·5; wing 4·5 to 4·95; tail from vent, 3·2 to 3·7; tarsus, ·6 to ·65; bill from gape, 2·7 to 2·9.

A female measured.—Length, 10·7; expanse, 14·75; wing, 4·55; tail from vent, 3; tarsus, ·62; bill from gape, 2·7.

The irides are dark brown; bill, dusky red, tipped with blackish brown; legs and feet, brownish red; claws, dark brown.

130—Halcyon pileata, *Bodd.*

This beautiful King-fisher formed a marked characteristic of the avi-fauna belonging to the Rangoon district of the Irrawaddy delta. It was to be seen everywhere. It was abundant amongst the mangroves on each side of every creek and nullah. The shore jungle along the coast, from Elephant Point up as far as China-Ba-keer, resounded with its discordant cry. Under every little dry projecting twig along the sea shore, a quantity of white excreta, and the remains of the legs and bodies of small crabs showed where one of these birds had been making its dinner and indulging in its siesta. Each bird appears to have its own favorite watch tower, and when disturbed, flies away with a shrill cry, taking a semicircular sweep to some dry twig ahead, and as soon as it thinks that the danger is passed by, returns again to the post from which it had been dislodged. The following is a *resumé* of the dimensions recorded in the flesh of numerous examples of this species:—

Length, 11·7 to 12·5; expanse 18 to 18·75; tail from vent, 3·3 to 3·75; wing, 4·9 to 5·3; tarsus, ·6 to ·7; bill from gape, 2·9 to 3·15.

Irides, reddish brown or dark brown; bill, deep coral red; legs and feet, dusky brownish red; claws, horny brown.

132.—Halcyon chloris, *Bodd.*

The White-collared King-fisher occurs, though very sparingly throughout the tidal swamps intervening between Elephant

Point and China-Ba-keer. It was perhaps more frequently met with amongst the mangroves bordering the larger nullahs and creeks near the mouth of the Rangoon river, feeding upon the small crabs and fish, which at ebb-tide swarm upon the mud in those localities. I obtained four specimens, of which the following are the dimensions recorded in the flesh :—

Length, 10 to 10·25 ; expanse, 14 to 15 ; wing, 4-43 ; tail from vent, 2·8 to 3 ; tarsus, ·6 to ·63 ; bill from gape, 2·1 to 2·3. Irides, dark reddish brown ; upper mandible, dusky greenish black ; lower mandible, pinkish or yellowish white, tipped and margined with greenish black ; legs and feet, slaty grey.

134.—Alcedo bengalensis, *Gm.*

The common Indian King-fisher was tolerably abundant along all the nullahs and creeks in the vicinity of Elephant Point and Eastern Grove. It does not, however, appear to frequent the more extensive mangrove swamps along the coast between the Rangoon and China-Ba-keer rivers. The dimensions of four specimens recorded in the flesh are as follows :—

Length, 6·3 to 6·6 ; expanse, 9·4 to 9·75 ; tail from vent, 1·3 to 1·5 ; wing, 2·75 to 2 8 ; tarsus, ·35 ; bill from gape, 1·8 to 2 ; bill at front, 1·35 to 1·45.

Irides, dark brown ; uppermandible, black ; lower mandible, either black or brownish white, tipped and margined with dusky black ; legs and feet, dull red ; claws, brown.

147 *bis.*—Palæornis magnirostris, *Ball,* (*Vide* S. F., II, 9,176.)

Birds of this species were very abundant in the district about Elephant Point. They used to select the adjacent paddy-fields for their feeding grounds, remaining there throughout the day-time. Towards evening, however, they would return in large parties to roost amongst some isolated clumps of tall trees which were scattered here and there over the neighbourhood. I observed them breeding in the trunks of trees towards the end of January and throughout February. The following is a *resumé* of the dimensions of six specimens recorded in the flesh :—

Three Males—Length, 20 to 21 ; expanse, 22·5 to 23; tail from vent, 13 to 13·6 ; wing, 7·6 to 8 ; tarsus, ·73 to ·75 ; bill from gape, 1·2 to 1·3 ; from base of culmen to tip, 1·4 to 1· 5 ; height of bill at base, 1·35 to 1·47.

Three Females.—Length, 17 to 20 ; expanse, 21·5 to 22·75 ; tail from vent, 10·2 to 12·6 ; wing, 7·3 to 7·7 ; tarsus, ·72 to

·75 ; bill from gape, 1·05 to 1·25 ; from base of culmen to tip, 1·35 to 1·4; height of bill at base, 1·4 to 1·45.

In both sexes the irides were of a pale yellowish white ; bill, crimson, tipped with dirty yellow, apparently the result of attrition; legs and feet, bright yellow.

[The numerous specimens collected by Dr. Armstrong, though very much resembling *magnirostris* of the Andamans, has not, taking a series, so large a bill as that species. It is a very much larger bird, however, than the Ceylon *eupatria*, and it altogether wants the glaucous blue tinge on the head of the Northern and North-Western *sivalensis*, Hutton. It approaches nearest to *nipalensis*, Hodgson, but seems to me on the whole to average larger, and to have the yellow throat patch more conspicuously marked.—A. O. H.]

149 *bis.*—Palæornis bengalensis, *Gm.*, (*Vide* S. F., II, 16.)

This species was tolerably abundant in the forest districts lying between Elephant Point and China-Ba-keer. I have always found them consorting in parties of from seven or ten to twenty or thirty. They are very noisy birds, giving utterance to a harsh screaming cry during their flight, which is extremely rapid and powerful. The following is a *resumé* of the dimensions of eight specimens recorded in the flesh :—

Four males.—Length, 11·5 to 13 ; expanse, 15·7 to 16·5 ; tail from vent, 6·7 to 7·5 ; wing, 5·2 to 5·7 ; tarsus, ·5 to ·6 ; bill from gape, ·65 to ·75.

Four females.—Length, 10·5 to 11 ; expanse, 15·2 to 15·7 ; tail from vent, 5·7 to 6·3 ; tarsus, ·5 to ·6 ; wing, 5 to 5·25 ; bill from gape, ·65 to ·7.

In both sexes the irides were light pinkish or yellowish white ; upper mandible, orange or dark yellow, becoming lighter towards the point which is tipped with greyish white ; lower mandible, black ; legs and feet, dirty black.

152.—Palæornis melanorhynchus, *Wagler.*

This species was more numerous and more generally distributed than either *magnirostris* or *bengalensis*. It is usually gregarious in its habits, but I have not infrequently found it solitary. It occurs most abundantly in the vicinity of flowering trees, upon the flower and leaf buds of which it feeds. It is much more familiar than any other species of Parrot which I met with, and if one of a flock should happen to be wounded, its calling will bring the whole party flying round almost within arm's length, the entire number keeping up all the time an

unceasing din of not unpleasing chatter. Male birds measure in the flesh:—

Length, 13·75 to 14·5; expanse, 19·25 to 20·5; tail from vent, 6·7 to 7·5; wing, 6·6 to 6·8; tarsus, ·65 to ·7; bill from gape, ·9 to 1.

Females.—Length, 13·5 to 14·2; expanse, 19 to 20; wing, 6·5 to 6·7; tail from vent, 7 to 7·3; tarsus, ·6 to ·7; bill from gape, ·85 to 1.

In both sexes the irides are pearly white; the legs and feet, greenish grey. In the adult male the upper mandible is bright vermilion red, tipped more or less with yellowish white, while in the adult females and young males it is dusky black, in both sexes the lower mandible is black.

153.—Loriculus vernalis, *Sparrm.*

The Indian Lorikeet was by no means abundant. I have only met with it in the thin forest jungle at Elephant Point and near China-Ba-keer. The birds are very active little creatures, and have a curious habit of ascending the branch of a tree in a spiral path, making numerous circuits of the stem before reaching the extremity. Their cry is harsh and discordant. The following are the measurements of three specimens recorded in the flesh:—

Length, 5·55 to 5·75; expanse, 8·75 to 9·6; wing, 3·4 to 3·6; tail from vent, 1·55 to 1·7; tarsus, 0·45 to 0·5; bill from gape, 0·45 to 0·5.

The irides are white; bill, orange yellow; legs and feet, yellow; claws, dusky brown.

157 *ter.*—Picus analis, *Horsf.*—(*Vide* S. F. III, 57.)

This species was only met with in the thin tree jungle close to Elephant Point, where it was decidedly rare. Two females measured in the flesh:—

Length, 7 to 7·3; expanse, 11·5 to 11·6; tail from vent 2·5; wing, 3·9 to 3·8; tarsus. ·65 to ·7; bill from gape, 1 to ·95.

Irides, dark brown; bill, dull greenish black; legs and feet, dusky greyish black; claws, black.

163 *bis.*—Yungipicus canicapillus, *Blyth.*—(*Vide* S. F., III, 59.)

This species appears to be extremely local in its distribution. I have only met with it in a patch of tall willow-like trees ("*Sonneratia apetala*"), growing in a tidal jungle a few miles from Elephant Point. During the mornings and evenings they occurred in great abundance amongst the branches of these trees, but during the heat of the day they always retired for

shelter to the thick underwood adjoining. The following are the dimensions of six specimens recorded in the flesh :—

Three males.—Length, 5·5 to 5·8 ; expanse, 10·3 to 10·6 ; tail from vent, 1·7 to 1·9 ; wing, 3·15 to 3·2 ; tarsus, ·55 to ·6 ; bill from gape, ·72 to ·8·

Three females.—Length, 5·3 to 5·6 ; expanse, 10·2 to 10·5 ; tail from vent, 1·7 to 1·9 ; wing, 3·05 to 3·15 ; tarsus, ·5 to ·6 ; bill from gape, ·7 to ·75.

In both sexes the irides vary from light to dark brown ; bill, dark greenish black ; legs and feet, dull greenish slate color ; claws, horny brown.

166.—Chrysocolaptes sultaneus, *Hodgs.*

In the belts of forest trees between Elephant Point and China-Ba-keer, this species was met with in abundance. It flies with considerable rapidity from tree to tree the branches of which it ascends by a series of jerks. During its flight it utters a harsh scream, which it discontinues as soon as it alights. The following are the dimensions of several specimens recorded in the flesh :—

Males.—Length, 12·5 to 12·75 ; expanse, 20·25 to 21·5 ; tail from vent, 4·1 to 4·7 ; wing, 6·15 to 6·65 ; tarsus, 1·15 to 1·2 ; bill from gape, 2·1 to 2·2.

Females.—Length, 11·5 to 12·2 ; expanse, 20·1 to 20·75 ; tail from vent, 4 to 4·8 ; wing, 6·2 to 6·5 ; tarsus, 1·15 to 1·2 ; bill from gape, 1·85 to 2.

In both sexes the irides were white, with a tinge of pink shading into brownish at the sclerotic margin ; bill, legs, and feet of a dark slate color ; claws, dusky black.

[The numerous specimens collected by Dr. Armstrong agree well with specimens from Thayetmyso—like these, they are larger than *C. Delesserti*, and conspicuously smaller as a body than the true Himalayan *sultaneus*.—A. O. H.]

171 *bis.*—Gecinus vittatus, *Vieillot.*—(*Vide* S. F., III, 68.)

This species of Woodpecker appears to be rare in Southern Pegu.* I have only met with three or four specimens in the forest jungle near China-Ba-keer. Two males measured in the flesh :—

Length, 12·2 to 12·8 ; expanse, 16·2 to 17·75 ; tail from vent, 4·8 to 4·9 ; wing, 5·45 to 5·5 ; tarsus, 1·1 ; bill from gape, 1·6 to 1·7.

* Say rather, close to the coast.—Ed, S. F.

The irides were dull red; upper mandible, dusky black; lower mandible, brownish yellow, tipped with dusky; legs, feet, and claws, dull greenish black.

184.—Tiga intermedia, *Blyth.*

I found this species to be more common and more generally distributed than any other Woodpecker. It was especially numerous in the vicinity of China-Ba-keer, where there are belts of tall forest trees running parallel to the shore. From sun-rise until nearly noon, this region resounds with the harsh cry, which, like *Chrysocolaptes sultaneus*, they only utter when on the wing flying from tree to tree. Like that species too they always alight on the lower part of the trunk or branch, ascending by a series of jerks, and stopping frequently to gather insects from the bark, or to have a look around them. During their flight they make with their wings a peculiar whirring noise, which I have not remarked during the flight of *Chrysocolaptes sultaneus*. The following are the dimensions of six specimens recorded in the flesh :—

Three males.—Length, 10·5 to 11·6 : expanse, 16·8 to 17·7; tail from vent, 4 to 4·3; wing, 5·45 to 5·75; tarsus, 1 to 1·1; bill from gape, 1·3 to 1·4.

Three females.—Length, 10·75 to 11·25; expanse, 16·5 to 17·75; tail from vent, 4·1 to 4·4; wing, 5·5 to 5·8; tarsus, ·95 to 1·05; bill from gape, 1·25 to 1·3.

Irides, bright red; bill, dull bluish black; legs and feet, slate color.

197.—Xantholæma hæmacephala, *Müll.*

Wherever there was thin forest jungle or clumps of trees, this species was to be met with in abundance. They frequented, as a rule, the outskirts of the forest, perching on the tops of the trees, and giving utterance to their peculiar monotonous call, which may be distinctly heard at a distance of more than a quarter of a mile. The following is a *resumé* of the dimensions of four male birds recorded in the flesh :—

Length, 5·5 to 6·7; expanse, 10·2 to 10·65; tail from vent, 1·5 to 1·7; wing, 3·2 to 3·4; tarsus, ·75 to ·85; bill from gape, ·9 to 1·05.

Irides, dark reddish brown; bill, dusky black; legs and feet, red; claws, black.

207.—Hierococcyx sparveroides, *Vigors.*

This species is undoubtedly rare. I have only met with it on two or three occasions, and always in the thickest part of

the forest jungle near China-Ba-keer. A male specimen shot on the 19th December measured in the flesh :—

Length, 15·7 ; expanse, 25·3 ; tail from vent, 8·75 ; wing, 9·25 ; tarsus, 1 ; bill from gape, 1·4.

Irides, rich yellow; eyelids, margined with orange yellow ; upper mandible, dull greenish black; lower mandible, dusky horny green, shading into dirty yellow towards the point, which is tipped with dusky black; legs, feet, soles, and claws, bright yellow. The contents of the stomach consisted almost entirely of portions of grasshoppers and beetles.

209.—Cacomantis rufiventra, *Jerd.*

This species was universally distributed over the entire region lying between Rangoon and China-Ba-keer, but did not appear to be abundant anywhere. They were generally met with in pairs, frequenting the open ground at the outskirts of forest jungle, keeping almost exclusively to low bushes or hedges. There does not seem to be any appreciable difference of size between the two sexes. The following is a *resumé* of the dimensions of five specimens recorded in the flesh :—

Length, 8·75 to 9·5 ; expanse, 15·1 to 15·6 ; tail from vent, 4·5 to 5·1 ; wing, 4·45 to 4·6 ; tarsus, ·6 to ·65 ; bill from gape, ·9 to 1.

Irides, brown ; upper mandible, reddish black ; lower mandible, yellowish brown, tipped with dusky ; gape, deep salmon red ; legs and feet, yellowish brown ; claws, black.

215.—Rhodophytes tristis, *Less.*

This species was not uncommon amongst the copses and thickets in the forests jungle between Elephant Point and China-Ba-keer. Several specimens measured in the flesh show the following result :—

Length, 20·5 to 22·5 ; expanse, 16·2 to 18·2 ; tail from vent, 13·2 to 16·5 ; tarsus, 1·55 to 1·65 ; bill from gape, 1·5 to 1·65. Irides, brownish red ; lores, crimson ; bill, bright horny green, darker towards the base ; legs and feet, greenish black ; claws, dark brown.

217 *quat.*—Centrococcyx eurycercus, *Hay.*—(*Vide* S. F., I, 453 ; III, 83.)

This species was generally distributed, though far from abundant anywhere. I only obtained a single specimen which I shot near Elephant Point ; it was a female and measured in the flesh :—

Length, 20·5 ; expanse, 24 ; tail from vent, 10·75 ; wing, 7·9 ; tarsus, 2·4 ; bill from gape, 1·9.

Irides, crimson; bill, dusky black, whitish at extreme point; legs and feet, dark slaty black; claws, black.

[The only specimen obtained by Dr. Armstrong resembles in every respect specimens from Thayetmyo; and if the races, which I have indicated, as differing materially from the true *eurycercus*, be considered deserving of specific separation, this present specimen should stand as *C. intermedius*. (See S. F., I, 453; and III, 83).—A. O. H.]

233 *bis*.—Chalcoparia cingalensis, *Gmel*, (*Vide* S. F., III, 86.)

I have only met with this species at Syriam and the vicinity of Elephant Point, where, however, they appear to be scarce. They frequent the thin shrubby jungle in those localities. The following are the dimensions of three specimens recorded in the flesh:—

A male measured.—Length, 4·3; expanse, 6·2; wing, 2·2; tail from vent, 1·75; tarsus, 0·6; bill from gape, ·06.

Two females.—Length, 4 to 4·1; expanse, 5·8 to 5·9; wing, 2·05 to 2·15; tail from vent, 1·55 to 1·6; tarsus, 0·58 to 0·6; bill from gape, 0·55 to 0·58.

In both sexes the irides are bright red; bill, dusky black; legs and feet, dull greenish black.

234.—Arachnechthra asiatica, *Lin.*

In the neighbourhoods of Rangoon and Syriam this species was extremely abundant, but I have only met with it two or three times between Elephant Point and China-Ba-keer. Male birds measure in the flesh:—

Length, 4·4 to 4·7; expanse, 6·7 to 6·8; wing, 2·15 to 2·2; tail, 1·4 to 1·55; tarsus, ·52 to ·6; bill from gape, ·8 to ·85.

A female measured in the flesh:—

Length, 4·4; expanse, 6·75; wing, 2·15; tail from vent, 1·35; tarsus, ·55; bill from gape, ·8.

Irides, brown; bill, legs, feet, and claws, black.

234 *ter*.—Arachnechthra flammaxillaris, *Blyth.*

This species, though not abundant anywhere, was met with generally throughout the district. Five males measured in the flesh:—

Length, 4·3 to 4·6; expanse, 6 to 6·25; wing, 1·97 to 2·1; tail from vent, 1·35 to 1·5; tarsus, ·5 to ·55; bill from gape, ·75 to 8.

A female measured in the flesh:—

Length, 4·25; expanse, 6; wing, 2; tail from vent, 1·5; tarsus, ·53; bill from gape, ·8.

In all the irides were red; bill, legs, feet, and claws, black.

[When describing *Arachnechthra andamanica* (S. F., I, 404), I also pointed out some of the characteristic differences of the present species, *A flammaxillaris*, Blyth; but the species is not included in Dr. Jerdon's work, and has not yet been described in "STRAY FEATHERS."

The following are the dimensions, and a description founded on a large series obtained in various parts of the Tenasserim provinces and lower Pegu, Diamond Island, and Akyab:—

Males.—Length, 4·3 to 4·6; expanse, 6 to 6·8; wing, 1·95 to 2·12; tail from vent, 1·35 to 1·55; tarsus, 0·5 to 0·55; bill from gape, 0·7 to 0·8; bill at front, 0·59 to 0·7.

Female.—Length, 4·25 to 4·37; expanse, 6 to 6·5; wing, 2 to 2·05; tail from vent, 1·3 to 1·5; tarsus, 0·45 to 0·53; bill from gape, 0·7 to 0·8; bill at front, 0·63 to 0·67.

The bill, legs, feet, and claws, black. As to the irides there is some doubt; they have been recorded as red in some specimens, and dark brown in others.

The adult male has the entire top and back of the head, sides and back of the neck, the entire back, scapulars, and lesser coverts, rump and upper tail coverts, a dull olive green, or brown, washed with this color. Some specimens are much browner, some greener, but in most examples, there is a slightly brighter tinge on the rump.

The quills, and their greater coverts, are rather pale hair brown, as a rule all more or less fringed on their outer margins, with the color of the back, but this is sometimes almost entirely wanting, only the margins of the quills being slightly paler.

The tail is black; the exterior tail feather broadly, and the next two, more and more narrowly tipped with white.

The chin, throat, and breast, deep metallic purple, bordered along the sides of the neck, and, indeed, from the gape downwards, by a more or less well-defined band of deep steel blue. Below, the deep metallic purple of the upper breast is bordered by a more or less conspicuous band of red, which varies from a brownish orange red in some specimens, to almost maroon in others.

This band is very imperfectly marked in some good specimens even, and it is succeeded by a dusky or blackish patch, in some specimens confined to the centre of the breast, in some extending on either side into a band.

The abdomen, vent, and lower tail coverts, typically are clear pale primrose yellow, paling somewhat on the lower tail coverts, but in some specimens with a gamboge tint on the abdomen, and in others very pale, the flanks always more or less shaded with grey or dusky, which, in some very brightly-colored

specimens, becomes a greenish olive. Axillary tufts typically a flame orange, but in some specimens only an intense gamboge yellow, tinged with orange towards the tips.

I am not clear as to the meaning of these variations in color, as they occur in specimens all apparently adult, and killed at the same time and place.

The female is similar to the male, but appears never to have the same amount of green edgings to the quills and their coverts, and has the entire lower surface a bright clear primrose yellow, only down the centre of the chin and throat, the color is slightly paler and less pure.—A. O. H.]

236.—Dicæum cruentatum, *Lin.*

I have met with this species only in the immediate vicinity of Rangoon, where it was extremely abundant. They are met with most abundantly during the hottest part of the day, frequenting thin tree or open forest jungle. They flit about with great activity from tree to tree, usually in small parties of four or five, giving utterance all the time to small chirruping notes. The following is a *resumé* of the dimensions of six males recorded in the flesh:—

Length, 3·25 to 3 5; expanse, 5·8 to 6·1; wing, 1·85 to 1·95; tail from vent, 1·1 to 1·15; tarsus, ·45 to ·5; bill from gape, ·5 to ·55.

A female measured in the flesh:—

Length, 3·3; expanse, 5·65; wing, 1·75; tail from vent, 1·1; tarsus, ·46; bill from gape, ·5.

In both sexes the irides were reddish brown; bill, legs and feet, black.

254 *bis.*—Upupa longirostris, *Jerd.*—(*Vide* S. F., III, 89.)

This species appeared to avoid forest jungle, but was very abundant in the open cultivated or waste ground, frequenting the shrubs and hedges in those localities. I have usually found it consorting in pairs. The following is a *resumé* of six specimens, the dimensions of which have been recorded in the flesh:—

Two males.—Length, 11·7 to 12·2; expanse, 17 to 17·4; wing, 5·45 to 5·5; tail from vent, 4·1 to 4·4; tarsus, ·95; bill from gape, 2·55 to 2·75; from forehead to tip, 2·42 to 2·6; from anterior margin of nares to tip, 2 to 2·2.

Four females.—Length, 11·2 to 11·75; expanse, 16·5 to 17; wing, 5·1 to 5·3; tail from vent, 3·9 to 4; tarsus, ·93 to ·95; bill from gape, 2·37 to 2·52; from forehead to tip, 2·25 to 2·37; from anterior margin of nares to tip, 1·85 to ?.

In both sexes the irides were light brown; bill, dusky black, paler towards base; feet, legs, and claws, dark slate color.

[Dr. Armstrong preserved eight specimens. All of these agree in the characteristic point of the black tippings of the crest feathers joining on to the chestnut of the crest, without any intermediate white bar as in *epops*, or paler band as in *nigripennis*. The bills too, as will be seen from Dr. Armstrong's measurements, run considerably longer than those of either of the two above referred to species. A. O. H.]

260 *bis.*—Lanius collurioides, *Less.* (*L. hypoleucos*, Blyth.—*Vide* S. F., III, 90.)

I have only seen this species at Rangoon where it was decidedly scarce. They frequent the thick bushes and hedges in the neighbourhood. The following are the measurements of two male birds recorded in the flesh:—

Length, 7·6 to 7·8; expanse, 10·7 to 10·5; wing, 3·4 to 3·35; tail from vent, 3·55 to 3·75; tarsus, 1; bill from gape, ·9 to ·85.

Irides, reddish brown; upper mandible, dusky black, margined near gape with yellowish white; lower mandible, yellowish white, tipped with dusky black; feet and legs, dusky.

261.—Lanius cristatus, *Lin.*

This Shrike, although far from being abundant, appears to be more generally distributed than *collurioides*. It seems to prefer the vicinity of towns or villages, frequenting the thick low jungle in their vicinities. The following are the measurements recorded in the flesh of two specimens, a female and a male killed near Rangoon and Elephant Point respectively:—

Length, 7·4 to 7·6; expanse, 10·4 to 10·5; wing, 3·35; tail from vent, 3·2 to 3·3; tarsus, 1; bill from gape, ·85 to ·87.

Irides, dark brown; upper mandible, dusky black, margined with yellowish white near gape; lower mandible, dirty white, tipped with dusky black; legs and feet, dusky brown.

270.—Graucalus Macei, *Less.*

This species occurs in tolerable abundance amongst the thin tree jungle at Syriam and Eastern Grove, as well as in similar localities between Elephant Point and China-Ba-keer. It frequents the tops of the taller trees, flying from one to another, and seldom so far as I have observed, settling amongst any of the lower branches. There seems to be no appreciable difference of size between the two sexes. The measurements

of two males and two females recorded in the flesh are as follows :—

Length, 12 to 12·35 ; expanse 19·3 to 19·75 ; wing, 6·6 to 6·75 ; tail from vent, 5·2 to 5·5 ; tarsus, 1·05 to 1·1 ; bill from gape, 1·5 to 1·55.

The irides vary from brilliant light hazel to reddish or dark brown ; bill, legs, and feet, black.

[The Rangoon specimens agree perfectly with Calcutta specimens, and are intermediate in size, between the larger Northern race usually identified as the true *Macei*, and the smaller Southern G. *Layardi*, of Blyth. I do not myself believe in the distinctness of these two supposed species. (See also S. F. II, 204.—(A. O. H.]

275.—Pericrocotus roseus, *Vieillot.*

This species occurs sparingly in the vicinities of Rangoon and Syriam, and I have also found it in the neighbourhood of China Ba-keer. As a rule, it is solitary in its habits, and I have never met with more than a pair of these birds together. They seem to prefer high trees with loose foliage, such as *Casuarinas* and *Sonneratias*, amongst the branches of which they hop about with great rapidity. The following result is obtained from the measurments of three males recorded in the flesh :—

Length, 7·2 to 7·3 ; expanse, 9·8 to 10·3 ; wing, 3·3 to 3·45 ; tail from vent, 3·3 to 3·7 ; tarsus, ·6 to ·65 ; bill from gape, ·75 to ·8.

Irides, dark brown ; bill, legs, and feet, black.

[Lord Walden, in his interesting article on the late Colonel Tickell's "Illustrations of Indian Ornithology," remarks :—"P. *roseus*, ♂, is figured and described by Colonel Tickell from a Tenasserim example. The uropygium and upper tail coverts are described as being 'pure brilliant scarlet,'—This is certainly the case with all Burman and Assam birds I have seen. But is it so in typical Bengal and other Indian individuals ? These last I have never met with varying from the description given by Jerdon (B. Ind. I, p. 422.)—'rump tinged with rosy"

Typical specimens from Mergui are widely different from others, say from the Agrore valley at the extreme north-west frontier of India. In the Tenasserim specimens the head and back, the former especially, are a much darker, almost leaden grey, in the Agrore bird much paler and browner. In the Agrore bird, the rump and upper tail coverts are merely tinged with rosy, in the Tenasserim bird the upper tail coverts are brilliant crimson scarlet, and the rump is strongly tinged and patched with the same color. The red on the wings, tail and wing lining of the Tenasserim bird is altogether brighter

than in the Agrore bird. Birds from Rangoon appear to be similar. Adult females of the Tenasserim birds also differ from the female from Agrore, in the first place in being somewhat darker, and in the second place in having the rump and upper tail coverts not merely slightly yellowish, but also in having each feather of these parts narrowly fringed with bright gamboge yellow. Birds from the neighbourhood of Mussoorie and the Doon are very similar to those from Agrore, but are somewhat darker in color, and so the Darjeeling birds also appear to be. But specimens from Comillah, Tipperah, appear to be intermediate between the two forms, but most nearly allied to the Tenasserim form, having a very strong scarlet tinge on the rump, and having the upper surface notably darker than in the Agrore specimens. I think that the two forms grade perfectly into one another, and I am not myself inclined to separate them specifically. If the Tenasserim form should be deemed worthy of separation, it would probably stand as *affinis*, MacClelland. P. Z. S. 1839, p. 157, which is stated to pertain to the Assamese form of *P. roseus*, which corresponds with the Tipperah birds.—A. O. H.]

276—Pericrocotus peregrinus, *Lin.*

This species was abundant at Rangoon and Syriam as well as throughout the entire district intervening between Elephant Point and China-Ba-keer. It occurred in greatest numbers along the borders of the forest jungle, and I have always met with it consorting with several others of the same species. They measure in the flesh.

Length, 5·7 to 6; expanse, 8·4 to 8·8; wing 2·65 to 27; tail from vent, 2·7 to 2·8; tarsus, ·6 to ·62; bill from gape ·62 to ·65.

Irides, dark brown; bill, legs, and feet, dusky black.

278.—Buchanga albiricta, *Hodgs.*

The common Drongo Shrike occurred in abundance everywhere. It was to be found alike on the outskirts of forests, in the vicinity of villages and along the sea-shore. The following is a *résume* of the dimensions of six specimens recorded in the flesh:—

Three males—Length, 10·55 to 11; expanse, 16·6 to 17·25; wing, 5·7 to 5·9; tail from vent, 5·6 to 5·9; tarsus, ·7 to ·72; bill from gape, 1·05 to 1·1.

Three females.—Length, 10·35 to 11; expanse, 15·5 to 16·7; wing, 5·2 to 5·55; tail from vent, 5 to 5·8; tarsus, ·67 to ·7; bill from gape, 1·05 to 1·1.

In both sexes the irides vary from brown or reddish brown, to bright red; the bill, legs, and feet, are black.

[A large number of specimens, procured by Dr. Armstrong, are what I consider to be true *albiricta*. In a very fine specimen of this species from Ajmere, (I choose a central locality), in which the white rictal spot is very nearly the tenth of an inch in diameter, a male, the wing measures 5·92, and the tail from vent, it being a particularly fine specimen, 6·25. These Rangoon specimens agree precisely with this Ajmere specimen in size and shape of bill, in color, and I may also say in size, as in some males the wings range up to 5·9, and the tails also up to 5·9. As regards the rictal spot, none have this so strongly marked as in the Ajmere example, but some have it clearly marked, while in others it is barely discernible. Doctor Jerdon (*Ibis*, 1872, p. 119) separates the Indian King-crow without a rictal spot under Swinhoe's name of *cathœcus*, but I must absolutely dispute the value of the rictal spot as a specific characteristic of Indian birds as all over the country, at least, wherever, I have been, birds with and without the rictal spot equally occur. As to the smaller Southern race *D. minor*, Blyth, from Ceylon, and and *B. atra*, Hermann, from Tranquebar, the difference of size may be considered to warrant specific separation, but certainly *D. longus* and *D. cathœcus* of India, *apud* Jerdon, are not in my opinion separable from *D. albirictus*.—A. O. H.]

280 A.—Buchanga intermedia, *Blyth*.—(*Vide* S. F., III, 97.)

The ashy Drongos collected from the neighbourhoods of Rangoon and Syriam, as well as those from the district intervening between Elephant Point and China-Ba-keer, may, from their relative dimensions, be arbitrarily divided into two *quasi* species. The larger birds are, probably, referable to the *B. pyrrhops* of Hodgson, although their dimensions are somewhat less those given by Mr. Grote for that species; while the smaller variety may, I think, with equal probability be referred to the *B. intermedia* of Blyth. The following are the dimensions recorded in the flesh of four specimens of *intermedia* :—

	Sex.	Length.	Expanse	Wing.	Outer tail feathers.	Middle tail feathers.	Tarsus.	Bill from gape.
1	♂	10	15 5	4 9	4·8	3 8	·76	1·05
2	,,	10·3	16	5 1	5 2	3 9	·75	1·12
3	,,	10 5	16·3	5 3	5·5	3·9	·72	1·07
4	,,	10 4	16	5 2	5·6	4	·75	1·1

In all four specimens the irides were lake red; the bill, legs, feet, and claws, jetty black.

280 B.—Buchanga pyrrhops, *Hodgs.*—(*Vide* S. F., III, 98.)

The birds which have been referred to this species were as generally distributed and occurred in apparently as great abundance as the preceeding The following are the dimensions of four specimens recorded in the flesh :—

	Sex.	Length.	Expanse	Wing.	Outer tail feathers.	Middle tail feathers	Tarsus.	Bill from gape.
1	♂	11 2	17 25	5·65	6·3	4 5	·75	1 12
2	,,	11	17 25	5·5	5 9	4 3	·75	1·15
3	,,	11·5	17	5·6	6·4	4·5	·8	1 2
4	♀	10 75	17	5 4	5 5	4 3	·75	1·15

In all four specimens the irides were lake red, and the bill, legs, and feet, jetty black.

[I should unhesitatingly refer all these eight birds, all precisely similar, and in which a regular gradation of size can be traced, to one species. They are all, with one exception, very typical, being light iron grey beneath, pale above, and very ashy on the tail. One specimen, however, is much closer to *longicaudatus*, the bill and the entire upper surface, including the tail, is absolutely inseparable from true *longicaudatus*. The breast and abdomen alone have the purer lighter grey tint of *pyrrhops*. In these respects this bird resembles several from Dacca, where the typical *pyrrhops* also is common. Most certainly typical *longicaudatus* and typical *pyrrhops* or *intermedius* appear to be very different, but no observer, however superficial, with an adequate series before him, can truthfully deny that numbers of intermediate forms occur, which might be indifferently united with either, and under these circumstances I must reiterate the remark I long ago made, namely, that it is very doubtful whether it is expedient to separate specifically all these interblending races.—A. O. H.]

282.—Chaptia ænea, *Vieillot.*

This species occurs very sparingly in the forest jungle near China-Ba-keer, but I have not met with it elsewhere. A male specimen measured in the flesh :—

Length, 8·7 ; expanse, 13·8 ; tail from vent, 4·6 ; wing, 4·75 ; tarsus, ·7; bill from gape, 1.

Irides, dark reddish brown ; bill, legs, and feet, deep black.

283.—Bringa tectirostris, *Hodgs.*

This species was met with occasionally in the thick underwood of the tall forest jungle adjacent to China-Ba-keer, where, however, it was scarce. The following are the dimensions recorded

in the flesh of two male birds, shot at China-Ba-keer in December, neither of which had by that time developed its long tail feathers :—

Length, 10·5 to 10·75; expanse, 15·9 to 16·25; wing, 5·15 to 5·2; tail from vent, 5·4 to 5·35; tarsus, ·85; bill from gape, 1·1 to 1·15.

Irides, reddish brown; bill, legs, feet, and claws, black.

285 *bis*.—Dissemurus paradiseus, *Lin.* (*Vide* S. F., II, 212; III, 101.)

This species was met with in great abundance in the forest belts intervening between the Rangoon and China-Ba-keer rivers. It frequents the lower branches of the trees and the dense thorny underwood in those localities. The following are the measurements of six specimens recorded in the flesh :—

Three Males.—Length, 20·5 to 22; expanse, 19·5 to 20; wing, 6·35 to 6·6; outer tail feathers, 14·5 to 16·2; middle tail feathers, 5·8 to 6; tarsus, 1·2 to 1·25; bill from gape, 1·5 to 1·55.

Three Females.—Length, 17·5 to 19·5; expanse, 18·5 to 19·25; wing, 6 to 6·2; outer tail feathers, 11·2 to 14; middle tail feathers, 5·5 to 6; tarsus, 1·15 to 2; bill from gape, 1·45 to 1·52.

Irides, dark brown or reddish brown; bill, legs, feet, and claws, black.

286.—Chibia hottentota, *Lin.*

Although this species was, as a rule, abundant in those localities where it occurred, yet it appeared to be very local in its distribution. I have met with it most abundantly near Syriam, where I shot some nine or ten specimens in a small clump of *Acacias*, the flowers of which they were minutely examining apparently in search of insects. These trees appeared to afford them such an abundant harvest of food, that, although they would all fly off at the report of the gun, yet after flying away to a short distance, they would almost immediately return to the same trees. I do not think that there could have been less than seventy or eighty of these birds feeding in this small clump of nine or ten *acacias*. There is no appreciable difference in the dimensions of the two sexes. The following is a *resumé* of the dimensions of eight males and four females recorded in the flesh :—

Length, 11·5 to 12 5; expanse, 18·75 to 20; wing, 5·9 to 6·55; tail from vent, 5·3 to 5·5; tarsus, 1 to 1·1; bill from gape, 1·45 to 1·7.

Irides, dark brown; bill, legs, feet, and claws, black.

287.—Artamus fuscus, *Vieillot.*

This bird was very abundant throughout the entire district. I have met with at Rangoon, Syriam, Elephant Point, and

China-Ba-keer. It was especially numerous in the vicinities of villages, where parties of from ten to twenty or more would perch in the upper branches of some tall tree, whence they would sally forth at intervals in quest of insects. Male birds measure in the flesh :—

Length, 7 to 7·5 ; expanse, 14·5 to 15 ; wing, 5 to 5·15 ; tail from vent, 2·3 to 2·5 ; tarsus, ·6 to ·7 ; bill from gape, ·85 to ·95.

A female measured in the flesh :—

Length, 7·3 ; expanse, 14·75 ; wing, 5·05 ; tail from vent, 2·3 ; tarsus, ·6 ; bill from gape, ·9.

In both sexes the irides are dark brown ; bill, greenish blue, tipped with dusky ; legs and feet dark, dark slate color.

290.—Myiagra azurea, *Bodd.*

This species was abundant throughout the entire district, frequenting for the most part the underwood in forest jungle. I have generally met with it in small parties of four or five, all of which were usually females. The male bird when met with was generally solitary, but now and then I observed one amongst a party of females. The females are somewhat smaller than the males.

Four females measured in the flesh :—

Length, 5·8 to 6·2 ; expanse, 5·75 to 6·5 ; wing, 2·6 to 2·85 ; tail from vent, 2·6 to 2·9 ; tarsus, ·65 to ·67 ; bill from gape, ·7 to ·72.

A male specimen measured in the flesh :—

Length, 6·5 ; expanse, 6·75 ; wing, 2·95 , tail from vent, 2·9 ; tarsus, ·75 ; bill from gape, ·75.

Irides, dark brown ; bill, indigo blue ; legs and feet, slaty color.

295.—Culicicapa cinereocapilla, *Vieillot.*

I have only met with this bird in the neighbourhood of Rangoon, where it appears to be very rare. A male specimen shot in February measured in the flesh :—

Length, 4·6 ; expanse, 6·75 ; tail from vent, 1·95 ; wing, 2·4 ; tarsus, ·55 ; bill from gape, ·5.

Irides nearly black ; bill, dusky above, dirty white underneath ; legs and feet, brownish yellow.

296.—Hemichelidon sibiricus, *Gmel.*

This species appears to be rare. I only obtained a single specimen which I shot amongst the loose thickets near Elephant Point. It was a female, and measured in the flesh :—

Length, 4·7 ; expanse, 9·75 ; tail from vent, 2 ; wing, 2·9 ; tarsus, ·55 ; bill from gape, ·58 : width at rictus, ·37.

Irides, dark brown; upper mandible, dusky black; lower mandible, yellowish brown, tipped with dusky; legs and feet, brownish black.

301.—Eumyias melanops, *Vigors.*

This species occurred in tolerable abundance both at Syriam and Elephant Point. It appears to frequent alike the hedges and thickets in the sides of hills and in open waste ground as well as the low thin jungle in mangrove swamps. The following are the dimensions of five specimens recorded in the flesh :—

Two Males.—Length, 6·5 to 6·7; expanse, 10·75 to 11; wing, 3·45 to 3·5; tail from vent, 2·95 to 3·1; tarsus, ·62 to ·63; bill from gape, ·66 to ·68.

Three Females.—Length, 6 2 to 6·4 : expanse, 10·4 to 10·6; wing, 3·15 to 3·2; tail from vent, 2·6 to 2·9; tarsus, ·62 to ·63; bill from gape, ·6 to ·65.

Irides, dark brown; bill, legs, and feet, black.

323.—Erythrosterna leucura, *Gmel.*

This is evidently a rare species throughout the district. I have only seen a single specimen which I shot in December at Elephant Point. It was a female, and measured in the flesh.:—

Length, 5·3; expanse, 8·25; tail from vent, 2; wing, 2 65; tarsus, ·72; bill from gape, ·63.

Irides, very dark brown; bill, dusky brown, lighter underneath, legs and feet, dusky black.

371.—Oreocincla dauma, *Lath.*

I have only seen a single specimen of this bird, which I shot on the 18th December, in the forest jungle near China-Ba-keer. It was busily occupied picking up insects on the ground, and on being disturbed, flew away into a tree, where it was shot. It was a fine male bird, and measured in the flesh :—

Length, 11·3; expanse, 17·25; tail from vent, 4·35; wing, 5·6; tarsus, 1·35; bill from gape, 1·25.

Irides, dark brown; upper mandible, dusky black; basal half of lower mandible, yellowish brown; terminal, half dusky; legs and feet, yellowish brown; claws, horny brown.

396.—Timalia pileata, *Horsf.*

I shot a single specimen of this bird at Elephant Point in the beginning of January, but did not meet with any more. Its sex is doubtful, the generative organs not being sufficiently developed for determination. It measured in the flesh :—

Length, 5·6; expanse, 7·8; tail from vent, 2; wing, 2·55; tarsus ·98; bill from gape, ·78; from nares, ·52.

Irides, reddish brown; bill, black; legs and feet, dusky black.

452 *ter A.*—**Ixus Davisoni,** *Hume.* (*Vide S. F., III,* 301.)

I have seen several birds which I believe belong to this species amongst the open tree jungle near Elephant Point. I only obtained a single specimen which was a female, and measured in the flesh :—

Length, 7·75; expanse, 11·25; tail from vent, 3·35 ; wing, 3·55 ; tarsus, ·9 ; bill from gape, ·9.

Irides, brownish white ; bill, legs, and feet, dusky black.

456.—Rubigula flaviventris, *Tickell.*

This little bird was extremely abundant in the neighbourhood of Rangoon. It occurs also, though sparingly, at Syriam, but I have not met with it in any portion of the country which lies between Elephant Point and China-Ba-keer. It is very familiar in its habits, and seems to prefer the vicinity of houses or villages. It frequently flies off shore, and perches on the rigging of the ships in harbour, where it will remain for hours, warbling songs with peculiarly sweet twittering notes. From its familiar habits it becomes an easy prey to the native boys of the town, who wantonly kill numbers of them with mud bullets discharged from a bamboo bow. The following is a *résume* dimensions of six specimens recorded in the flesh :—

Length, 7·25 to 7·6; expanse, 10 to 10·5 ; wing, 3·15 to 3·45 ; tail from vent, 3·2 to 3·5 ; tarsus, ·59 to ·65 ; bill from gape, ·72 to 75.

Irides, white, with a greenish yellow tinge ; bill, legs, and feet, dusky brownish black.

457 *bis.*—**Brachypodius melanocephalus,** *Gmel.*

This species was tolerably abundant at Syriam, frequenting the taller trees in thin forest jungle. I have also met with it in similar localities at Rangoon. I only obtained two specimens, a male and female, of which the following are the dimensions recorded in the flesh :—

Male.—Length, 7·2 ; expanse 10·2 ; tail from vent, 3·1 ; wing, 3·35 ; tarsus, ·55 ; bill from gape, ·75.

Female.—Length, 6·8; expanse, 9·75 ; tail from vent, 2·9 ; wing, 3·15 ; tarsus ·55 ; bill from gape, ·75. Bill, deep black ; legs and feet, plumbeous.

[This species is not included in Dr. Jerdon's work, and has not yet been described in "STRAY FEATHERS."

Male.—Length, 7·12 to 7·3 ; expanse, 10·12 to 10·3 ; wing, 3·2 to 3·35 ; tail from vent, 2·9 to 3·3 ; tarsus, 0·5 to 0·55 ; bill from gape, 0·75 to 0·85.

Female.—Length, 6·5 to 6·9; expanse 9·75 to 10; wing, 3·1 to 3·15; tail from vent, 2·8 to 3; tarsus, 0·5 to 0·55; bill from gape, 0·75 to 0·8.

In both sexes the legs are plumbeous or dark plumbeous, the bill is black, the inside of the mouth, pale plumbeous blue, the irides, clear pale blue.

The entire head, including cheeks, chin, and throat, black, with a metallic lustre, decidedly green on the throat and ear coverts, but purplish in most lights elsewhere. The whole body above and below, including upper and lower tail coverts, the wing coverts, except the greater primary coverts, yellow, strongly tinged with greenish olive on the breast and back, and faintly washed with this tint elsewhere, except on the lower abdomen, vent, and lower tail coverts. The feathers of the lower back are only broadly tipped with yellow, and where the feathers are in the least disarranged, the deep brown basal portions show through as conspicuous more or less lunate patches. The quills and the primary greater coverts, deep hair brown; the secondaries, margined on their outer webs with, and the greater portion of the outer webs of the tertiaries, yellow. The tail, which is very much rounded, black, broadly tipped with bright yellow. Both upper and lower tail coverts are very long, the former reach within about 0·7, and the latter within 0·8, of the end of the tail, which brings them just level to the end of the exterior tail feather. The wing lining, white, tinged with yellow.

The female is, as a rule, precisely similar to the male, but in some cases is, perhaps, greener and more infuscated than in any male.

The quite young birds appear to have the metallic black of the head entirely replaced by a dull olive green, and the whole plumage is duller and greener than in the adult.—A. O. H.]

460.—Otocompsa emeria, *Shaw.*

This species was met with, though very sparingly throughout the district which lies between Elephant Point and China-Ba-keer. It occurs, however, in abundance at Syriam, where, as a rule, it keeps to the sides of the hills and lower elevations. The following is a *résume* of the dimensions of six specimens recorded in the flesh:—

Length, 7·5 to 8·25; expanse, 9·4 to 10; tail from vent, 3·2 to 3·6; wing, 3·05 to 3·3; tarsus, ·82 to ·85; bill from gape, ·82 to ·87.

Irides, brown; bill, legs, and feet, black.

461 *bis.*—Molpastes intermedius, *Hay.* (*Vide S. F., III*, 127.)

I have met with this species only in the thin tree jungle near Elephant Point, where, however, it appears to be rare. A male bird shot at the end of February measured in the flesh :—

Length, 8·5 ; expanse, 11·5; tail from vent, 3·7 ; wing, 3·8; tarsus; ·9 ; bill from gape, ·95.

Irides, dark brown ; bill, legs, feet, and claws, black.

467.—Iora typhia, *Lin.*

This little bird was met with in tolerable abundance, about Rangoon and Syriam, and less frequently at Elephant Point and China-Ba-keer. It appears to frequent loose shrubby jungle and gardens, as well as the outskirts of forest land. The following are the dimensions of four specimens recorded in the flesh :—

Length, 5·2 to 5·6; expanse 7·6 to 8·2; tail from vent, 1·8 to 2· ; wing, 2·4 to 2·6 ; tarsus, ·73 to ·75 ; bill from gape, ·68 to ·78.

Irides, light greyish white; bill, slaty blue, lighter at tip ; legs and feet, bluish grey.

469.—Irene puella, *Lath.*

This species occurs sparingly at China-Ba-keer, but is extremely common at Syriam, where, in the early mornings, large flocks of these birds may be found feeding amongst the different fig-trees in the neighbourhood. There is no constant difference in size between the two sexes. Three males and three females measured in the flesh show the following result:—

Length, 9·75 to 10·3 ; expanse, 14·5 to 15·5 ; tail from vent, 3·75 to 4·25 ; wing, 4·8 to 5·2; tarsus, ·75 to ·85 ; bill from gape, 1·1 to 1·2.

In one female the irides were deep red, in all the remaining specimens of either sex they were light reddish brown; the bill, legs, feet, and claws, were black.

Of nine specimens that I obtained, none exhibited the brilliant smalt blue plumage of the adult male. None of these specimens however were obtained later than the end of February.

[This brilliant plumage is however by no means seasonal, as we have killed males in the perfect plumage in every month in the year —A. O. H.]

471.—Oriolus chinensis, *Lin.*

This species was generally distributed, but by no means abundant anywhere. It frequents thinly wooded forest jungle,

keeping, as a rule, to the tops of the tallest trees. A fine male shot near Elephant Point measured in the flesh :—

Length, 10·5; expanse, 18·75; tail from vent, 3·8; wing, 6·2; tarsus, 1; bill from gape, 1·45.

Irides, red; bill, fleshy pink; legs, and feet, dusky slate color; claws, horny brown.

472.—Oriolus melanocephalus, *Lin.*

The black-headed Oriole occurs in abundance throughout the entire district. It frequents alike low tree jungle as well as forest land. A male specimen from Syriam measured in the flesh :—

Length, 9·5; expanse 15·8; wing, 5·1; tail from vent, 3·4; tarsus, ·98; bill from gape, 1·3. Irides, bright red; bill, brownish white, tipped with pinkish; legs and feet, dark slate color; claws, black.

475.—Copsychus saularis, *Lin.*

The Magpie Robin was met with everywhere in tolerable abundance. I have usually seen it in couples frequenting thickets and hedges. The following are the dimensions of four specimens recorded in the flesh :—

Three males.—Length, 8 to 8·7; expanse, 11·25 to 11·7; wing, 3·8 to 3·85; tail from vent, 3·5 to 3·9; tarsus, 1·15 to 1·2; bill from gape, 1 to 1·2.

One female,—Length, 8; expanse, 11; wing 3·55; tail from vent, 3·3; tarsus, 1·05; bill from gape, 1·05.

Irides, dark brown; bill, legs, and feet, black.

[Three specimens, male, of this species shot at Elephant point and China Ba-keer, places both on the western side of the Rangoon river, and about twenty miles apart, are remarkable for having, one the tail of typical *saularis*, with the fourth tail feather, counting from the exterior, pure white, with only a narrow dusky fringe on the basal portion of the inner web, while a second has an almost typical *musicus* tail, with the fourth feather black, with only a white wedge projecting downwards from the tip along the shaft for about an inch; the third is intermediate, the fourth feather is white, with a narrow black band on the exterior of the outer web, and a broad black band along the interior of the inner web. A single female only was procured at Elephant Point, she is much darker than females of the Indian *saularis*, but not so dark as *musicus* from the Straits.—A. O. H.]

483.—Pratincola indica, *Blyth.*

I have only met with this little bird in the neighbourhood of Elephant Point, where it was very abundant. It was always

to be found in the open waste ground, and amongst the paddy-fields, flying from one ear of rice to another, and generally selecting those which were taller than the surrounding ones. It is a very wary little bird, just allowing one to get within range of it, when it would at once fly off, and perch again at a little distance off, upon the dried stalk of some withered herb or tall rice-stem.

The following are the dimensions of four specimens recorded in the flesh :—

Two Males.—Length, 5·2 to 5·3 ; expanse, 7·5 to 7·25 ; wing, 2·7 to 2·55 ; tail from vent, 2·05 to 2 ; tarsus ·8 to ·78 ; bill from gape, ·62 to ·66.

Two Females.—Length, 5·2 to 4·8 ; expanse, ·7 to 7·2 ; wing, 2·5 to 2·55 ; tail from vent, 1·85 to 1·8 ; tarsus, ·78 to 8 ; bill from gape, ·7 to ·6.

Irides, darkbrown ; bill, legs, and feet, black.

518.—Arundinax ædon, *Pallas.*

This species appears to be very uncommon. I have only met with it once in the low scrubby jungle near Elephant Point. The specimen then obtained was a female, and measured in the flesh :—

Length, 7 5 ; expanse, 9·5 ; wing, 3·2 ; tail from vent, 3·45 ; tarsus, ·8 ; bill from gape, 1·1.

Irides, dark brown ; upper mandible, dusky brown ; lower mandible, whitish yellow ; legs and feet, slate color.

544 *quat.*—Drymoipus extensicaudata, *Swinhoe.*—(*Vide S. F.* III, 310.)

This little bird is rare. I have only seen a single specimen which I shot on the 1st of January a few miles from Elephant Point. It was running and hopping about amongst some acanthus bushes in a dried-up swamp, holding its tail erect, and giving utterance to a continuous succession of monotonous notes, probably to attract the attention of its partner. It was a male, and measured in the flesh :—

Length, 5·8 ; expanse, ·6 ; tail from vent, 2·85 ; wing, 1·95 ; tarsus, ·8 ; bill from gape, ·65.

Irides, light brown ; upper mandible, dusky brown ; lower mandible, pinkish white, tipped with horny, legs and feet, flesh color ; claws, horny brown.

[I have already previously thus identified similar specimens forwarded by Mr. Oates. This present specimen has been compared with Chinese examples received from Mr. Swinhoe.—A. O. H.]

555.—Phylloscopus fuscatus, *Blyth.*

This species did not appear to be very uncommon amongst the copses and thickets in the vicinity of Elephant Point. A male bird shot in that locality measured in the flesh :—

Length, 5·5; expanse, 7·2; tail from vent, 2·4; wing, 2·5; tarsus, ·95; bill from gape, ·52. Irides, brown; upper mandible, dusky brown; basal half of lower mandible, yellowish white; terminal half, light brown; legs, feet, and claws, yellowish brown.

558.—Phylloscopus lugubris, *Blyth.*

I only saw a single specimen of this species, which I shot in December near Elephant Point. It was a male, and measured in the flesh :—

Length, 4·9; expanse, 6·0; tail from vent 2; wing 2·5; tarsus, ·78; bill from gape, ·6.

Irides, brown; upper mandible, dark brown, tipped with light yellowish; middle part of lower mandible, light brown, whitish at base and tip; legs and feet, greenish brown.

565.—Reguloides superciliosus, *Gmel.*

I have only met with this species at Syriam and in the vicinity of Elephant Point, at both of which localities it appears to be very rare. Two male specimens measured in the flesh :—

Length, 4 to 4·2; expanse, 6·25 to 6·3; tail from vent, 1·5 to 1·65; wing, 1·12 to 1·12; tarsus, ·7 to ·7; bill from gape, 5 to ·49.

Irides, dark brown; upper mandible, dusky brown; lower mandible, yellowish white, tipped with brown; legs and feet, yellowish brown; claws, brown.

593 *quat.*—Budytes flava, *Lin.*—(*Vide* S.F. II, 238.)

This bird appeared to be numerous about Rangoon and in the neighbourhood of Elephant Point, frequenting the open waste ground and dried-up paddy-fields in those localities. A female shot at Rangoon measured in the flesh :—

Length, 6·9; expanse, 9·75; tail from vent, 3·2; wing, 3·35; tarsus, 1; bill from gape, ·7.

Irides, dark brown; upper mandible, dusky black; lower mandible, yellowish white, edged and tipped withhorny brown; legs, feet, and claws,black.

595.—Nemoricola indica, *Gmel.*

I have seen only a single specimen of this species, which I shot in the thickest part of the dense forest jungle a few miles

from China-Ba-keer. It was a male and gave the following measurements in the flesh :—

Length, 6·75; expanse, 9·5; tail from vent, 2·8; wing, 3; tarsus, ·8; bill from gape, ·9.

Irides, nearly black; upper mandible, dusky brown; lower mandible, fleshy white; legs and feet, purplish white; claws, horny white.

596.—Pipastes maculatus, *Hodgs.*

This species was met with sparingly in the thin tree jungle and amongst the isolated clumps of trees in the vicinities of Rangoon and Syriam. A female specimen killed at Rangoon measured in the flesh :—

Length, 6·5; expanse, 10·25; tail from vent, 2·5; wing, 3·3; tarsus, ·87; bill from gape, ·68.

Irides, dark brown; upper mandible, dusky brown, paler at margin; lower mandible, light yellowish brown; legs and feet, pale brown; claws, horny brown.

599.—Corydalla Richardi, *Vieillot.*

This species was extremely abundant in the paddy-fields and amongst the marshes and open swamps near Elephant Point and China-Ba-keer. The following are the dimensions of four males recorded in the flesh:—

Length, 7·6 to 7·8; expanse, 11·5 to 12·2; tail from vent, 3 to 3·2; wing, 3·45 to 3·7; tarsus, 1·2 to 1·22; bill from gape, ·8 to ·85.

Irides, dark brown; upper mandible, dusky brown; lower mandible, pale browish white, tipped with dusky brown; legs and feet very pale brown; claws, horny brown.

600.—Corydalla rufula, *Vieillot.*

This species was abundant in the cultivated and open waste ground around Rangoon and in the neighbourhood and Elephant Point. A female measured in the flesh :—

Length, 6·2; expanse, 10·25; wing, 3·27; tail from vent, 2·45; tarsus, ·98; bill from gape, ·75.

Irides, dark brown; upper mandible, dull brown; lower mandible, dirty whitishtipped with brown; legs and feet, pale brown; claws, horny brown.

645.—Parus cæsius, *Tickell.*

This species was met with abundantly in the open tidal jungle, bordering portions of the coast between Elephant Point and China-Ba-keer, and also in similar localities along the margin of the Rangoon river at Eastern Grove. It is a very active little

bird perpetually moving from one bush or tree to another, and frequenting alike the highest *Sonneratia* trees and the lowest mangroves. I have never observed it at any distance from tidal jungle. The following is a *resumé* of the dimensions of five males recorded in the flesh:—

Length, 5·5 to 5·75; expanse, 8·25 to 8·75; tail from vent, 2·2 to 2·4; wing, 2·42 to 2·55; tarsus, ·68 to 7; bill from gape, ·5 to ·53. Irides, brown; bill, black; legs and feet, slaty-blue; claws, black.

674.—Dendrocitta rufa, *Scop.*

I only saw a single specimen of this species, which I shot in the forest jungle near Syriam in the beginning of January. It was a male, and measured in the flesh:—

Length, 16·5; expanse, 18·5; wing, 5·85; tail from vent, 9·75; tarsus, 1·35; bill from gape, 1·42.

Irides, brownish red; bill, dusky black; legs and feet, slaty black; claws, black.

678 *bis.*—Crypsirina varians, *Lath*—(*Vide S. F. III.* 146.)

This bird occurred in great abundance in the Evergreen forests lying between Elephant Point and China-Ba-keer, as well as in the thin tree jungle near the mouth of the Rangoon river. The following is a *resumé* of the dimensions recorded in the flesh of six male and two female specimens:—

Length, 12 to 13; expanse, 12·75 to 13·5; tail from vent, 7·5 to 8; wing, 4·45 to 4·6; tarsus, 1 to 1·1; bill from gape, 1 to 1·07.

In most specimens the irides were of a fine pale or greyish blue, but in two males they were dark brown; the eyelids of all were margined with reddish or light brown, and the bill, legs, feet, and claws, were deep coal black.

683 *bis.*—Sturnopastor superciliaris, *Blyth*,—(*Vide S. F. III*, 149.)

This species was very common in all open cultivated and waste ground, more especially in the vicinity of villages. It was usually met with in parties of from ten to thirty. There is no appreciable difference in size between the two sexes. The following are the dimensions of six specimens recorded in the flesh:—

Length, 9·2 to 9·5; expanse, 13·5 to 14·5; tail from vent, 2·75 to 3; wing, 4·4 to 4·55; tarsus, 1·15 to 1·25; bill from gape, 1·38 to 1·45.

Irides, yellow; bill, orange red at base, shading into dirty white towards tip; legs and feet, pale yellowish brown; claws, light brown.

[The specimens vary a good deal, and that too apparently in the case of perfect adults. In some specimens the forehead and the entire crown are so thickly streaked with white, that little else is to be seen but this color; in others the forehead only is very sparingly streaked with white, so that the bird scarcely appreciably differs from *contra*.—A. O. H.]

686.—Acridotheres fuscus, *Wagler*.

This species was even more abundant than the preceding. The birds congregated in crowds round every village, and flocks of thirty or fifty might be seen feeding in almost every dried-up paddy field. The following are the dimensions of six specimens recorded in the flesh:—

Length, 9 to 10; expanse, 14·25 to 15·2; wing, 4·5 to 4·9; tail from vent, 2·9 to 3·2; tarsus, 1·25 to 1·35; bill from gape, 1·05 to 1·22.

Irides, whitish, yellowish white, or pale dull yellow; upper mandible, orange, tipped and margined with horny yellow and black at gape; lower mandible, orange, black at base, and tipped with horny yellow, legs and feet, dull brownish yellow.

688.—Temenuchus malabaricus, *Gmel.*

This species was very abundant, frequenting alike forest jungle, open country, hedges, and thickets. I have frequently seen these birds in the forests clinging like tit-mice to the trunks and branches of trees, and apparently searching for insects. They are usually gregarious, consorting in parties of five to fifteen.

The following are the dimensions of four males and two females recorded in the flesh:—

Length, 7·2 to 7·8; expanse, 12 to 12·75; wing, 3·75 to 4·05; tail from vent, 2·5 to 2·8; tarsus, 85 to 95; bill from gape, ·9 to 1·05.

Irides, dull white, greyish or pale yellowish white; bill bright apple green, dusky green at base, bright yellow towards, point, tipped and margined with pale yellow; legs and feet pale brown or yellowish brown.

688 *bis*.—Temenuchus burmanicus, *Jerd*,—(*Vide S. F. III*, 149.)

This appears to be a rare species. I have only seen a single specimen which I shot in November in the open forest

jungle near Rangoon. It was a male, and measured in the flesh.—

Length, 9·4; expanse, 14·5; tail from vent 3·2; wing, 4·52; tarsus, 1·3; bill from gape, 1·22.

Irides, light yellow; bill, bright orange red, tipped with horny yellow, and dusky black at base, naked lores, dull brown; legs and feet, yellowish brown.

688 *Quat.*—Temenuchus nemoricolus, *Jerd.*—

This species appears to be just as common as *malabaricus* from which it does not appear to differ in habits. I have generally killed both species together in the same flock. The following is a *resumé* of the dimensions of six specimens recorded in the flesh:—

Length, 7·2 to 7·7; expanse, 11·7 to 12·5; tail from vent, 2·4 to 2·9; wing, 3·7 to 3·95; tarsus, ·8 to ·9; bill, from gape, ·9 to 1·05.

Irides, pale yellowish white; bill, apple green, duller at base, and terminal portion bright yellow, tipped and margined with lighter yellow; legs and feet, pale brown or yellowish brown.

[I have already (S. F., III., 151), reproduced Doctor Jerdon's original description of this species, and I mentioned at the same time that this description did not correspond over well with the type specimen given me by Dr. Jerdon, and I also gave a full description of the type specimen. I have now ascertained that the bird given me by Dr. Jerdon was a young bird, which can scarcely have served him as a type, and which differs from his type in a most important particular. He says; "Winglet and a spot on the greater coverts pure white," and several of Dr. Armstrong's specimens agree perfectly with this description, namely, they have the entire winglet and the whole of the primary greater coverts white. On the other hand the specimen given me by Dr. Jerdon has the winglet and primary greater coverts dark brown, but has the median coverts and the secondary greater coverts, fulvous white.

I do not now doubt that these all belong to the same species or race. I find the amount of white in the wings of these birds most variable. In some specimens the winglet and only three or four of the primary greater coverts are white; in others only some of the winglet feathers and some of the primary coverts are white. Again, sometimes it is the anterior ones and sometimes it is the posterior ones that are white, sometimes white and brown feathers pretty well alternate; lastly, one specimen of Dr. Armstrong's has, besides the entire winglet and primary greater converts, one secondary and the entire *tail* white!

In my first list of the birds of Tenasserim, (S. F., II, 480 note) I pointed out that the race of *malabaricus*, at that time obtained by us in the northern half of Tenasserim, differed materially from the continental form, and I proposed for this form, in case it should be considered deserving of specific separation, the name of *leucopterus*.

I am now convinced that this form is not deserving of specific separation; it is not typical *malabaricus*, neither is it typical *nemoricola*, but a race intermediate between the two.

But, taking now a large series of specimens, it seems to me somewhat doubtful whether *nemoricola* even can be maintained; because after all, it only differs from *malabaricus* in the much paler hue of the lower surface and in the white of wing. The latter is a most unstable character, varying in extent and situation in every possible way; while as to the color of the lower parts, every intermediate shade between the darkest *malabaricus* and palest *leucopterus* is represented amongst my specimens.

There are specimens with only one single winglet or primary greater covert feather on one wing, white; all the rest, as as in *malabaricus*; and the lower surface scarcely perceptibly paler than in the fullest colored examples of this latter species. And at the other end of the series you have a bird, with the whole of the primary greater coverts and winglet, one secondary in each wing, and the whole of the tail white, and the lower surface also almost white. And between these extremes you have every intermediate form; the rule appearing to be that the more white there is on the wing, the paler is the lower surface and *vice versâ*.

Taking this in connection with the fact that the birds associate in the same flock, and are precisely identical in all other particulars, it seems to me possible that *nemoricolus* is nothing more than a more or less albinoid variety of *malabaricus*. This view of the question at any rate deserves fuller investigation, and Dr. Armstrong has promised to procure this next season a very full series of these birds.—A. O. H.]

691.—Saraglossa spiloptera, *Vigors.*

I shot a pair of these birds on the 1st January in the low scrubby jungle near Elephant Point. They are the only specimens which I have seen, and appear to be very rare throughout the district. The male measured in the flesh :—

Length, 7·85; expanse, 13·5; tail from vent, 2·55; wing, 4·25; tarsus, ·88; bill from gape, ·98.

Irides, dull white; bill, dusky black, reddish black at base of

lower mandible; upper and lower mandibles, margined with pale yellow; legs, feet, and claws, black.

The female measured in the flesh :—

Length, 7·75; expanse, 13; tail from vent, 2·5; wing, 4·15; tarsus, ·9; bill from gape, 1.

Irides, white; bill, black, dusky yellow at gape; legs, feet, and claws, black.

693.—Eulabes javanensis, *Osbeck.*

This species occurs sparingly in the evergreen forests about Syriam and China-Ba-keer. Two males measured in the flesh :—

Length to, 10·5 to 11; expanse, 20 to 19·25; wing, 6·5 to 6·15; tail from vent, 3·1 to 3·4; tarsus, 1·35 to 1·32, bill from gape, 1·5 to 1·42.

Irides, dark brown; nude lores, orbital skin, and lappets, yellow; bill, deep orange red, bright shading into bright yellow towards tip; legs, feet, and claws, dirty yellow.

693 *Sex.*—Ampeliceps coronatus, *Blyth.*

This species appears to be very uncommon throughout the entire district. I have only met with it once in the thick and almost impenetrable underwood of the forest jungle near China-Ba-keer. It then formed one of a party of eight or ten of the same species, who were chirping and chattering and chasing each other amongst the dense thickets in that locality. The following are the dimensions of a male specimen recorded in the flesh :—

Length, 8·7; expanse, 16·2; tail from vent, 2·5; wing, 5·05; tarsus, 1; bill from gape, 1·05.

Irides, dark brown; bill, dull greenish, tipped and margined with yellow; legs and feet, bright ochrish yellow; claws, dark brown.

[We had never previously obtained this beautiful species, the Gold-crested Grackle, further north than a place about twenty miles south of Moulmein. Dr. Armstrong's specimen is from near China-Ba-keer, in about the same latitude as our most northerly specimen, but fully a hundred miles further to the west.

I have seen no other specimens from anywhere else outside the Province of Tenasserim, and in that I only as yet know it to occur between Moulmein and some locality intermediate between Tavoy and Mergui: to the latter locality it does not extend.

This species has not yet been described in "STRAY FEATHERS," and is of course not included by Dr. Jerdon.

The following dimensions and description are taken from a large series obtained within the limits above referred to :—

Males.—Length, 8 to 9·2; expanse, 15·25 to 16·75; wing, 4·82 to 5·3; tail from vent, 2·2 to 2·5; tarsus, 0·95 to 1; bill from gape, 1 to 1·15; weight 2·75 to 3·5 ounces.

Females.—Length, 8·5 to 8·82; expanse, 15·12 to 16·82; wing, 4·82 to 5; tail from vent, 2·5; tarsus, 0·9 to 1; bill from gape, 1 to 1·12.

The legs and feet are in some a pinkish chrome yellow, in others a dingy fleshy orange, or a dull orange yellow; the claws, black, or dingy greenish blue. The bill is yellow, in some slightly brownish, in some greenish, more or less greenish at the gape, and bluish at the base of the lower mandible. The irides are very dark brown; the eyelids, black; the orbital skin in some a pale dingy orange, with fleshy tint, in some gamboge yellow, in some clear bright pale orange.

The adults of both sexes appear to be quite similar, and have the lores, forehead, crown, occiput, and a full short occipital crest, the chin, the upper throat, as far back as the centre of the eyes, and a triangular point projecting downwards in the centre of the lower portion of the throat, golden yellow.

The first six primaries have a broad white patch on the inner webs near the bases, the seventh has a small white patch also on the inner web, and the second to the seventh have a corresponding patch on the outer webs strongly tinged with golden yellow.

The whole of the rest of the plumage of the bird, except the inner webs of the quills, which are deep hair brown, is black, glossed with a dull green metallic reflection.

The young birds probably want the golden yellow on the throat and head. The youngest bird that I possess, has the lores and the whole front and top of the head black, but with a few golden feathers intermingled on the forehead and anterior half of the crown. There is also much less of the golden yellow on the chin and throat.—A. O. H.]

704 *bis*.—Estrelda burmanica, *Hume*. (*Vide, infra* p.)

This little bird appears to be very rare throughout the entire district. I have only once met with a single pair, a few miles from Elephant Point, amongst the tall grass ridges, which form the boundaries between the paddy-fields. It always rested upon some tall grass panicle, feeding apparently upon the seed, and when disturbed, would fly across the paddy-field to some neighbouring ridge of grass, where it would again settle. The following are the dimensions of a male recorded in the flesh:—

Length, 4·2; expanse, 5·35; tail from vent, 1·5; wing, 1·75; tarsus, ·51; bill from gape, ·33.

Irides, crimson; upper surface of upper mandible, black at its base, remainder of bill bright red; legs and feet, flesh, color.

767.—Alauda gulgula, *Franklin.*

This species was evenly distributed, and tolerably abundant over the entire district, frequenting open cultivated and waste ground.

A male specimen measured in the flesh :—

Length, 6·5 ; tail from vent, 2·4 ; expanse, 11·8 ; wing, 3·65 ; tarsus, ·98 ; hind toe and claw, 1·1 ; bill from gape, ·82.

Irides, dark brown; bill, light brown ; legs and feet, chocolate brown.

774.—Osmotreron bicincta, *Jerdon.*

This Pigeon was very abundant in the evergreen forests lying between Elephant Point and China-Ba-keer. It also occurs in tolerable abundance in the thin tree jungle and hedges on the borders of forest land. The following are the dimensions of four specimens recorded in the flesh :—

Length, 11·5 to 12 ; expanse, 19 to 20 5 ; tail from vent, 4 to 4·4 ; wing, 6·1 to 6·65 ; tarsus, ·88 to 9 ; bill from gape, ·85 to 9.

Irides with an inner ring of pale blue and an outer zone of salmon red ; bill, dull green to nares ; remainder, light horny green ; legs and feet, lake red.

780.—Carpophaga ænea, *Lin.*

This species occurred sparingly in the forest jungle near China-Ba-keer. A male bird shot in December measured in the flesh :—

Length, 17; expanse, 29; tail from vent, 5·9; wing, 9·35 ; tarsus, 1·1 ; bill from gape, 1·5.

Irides, deep red ; bill, dusky purple, darker at base ; legs and feet, lake red.

782.—Alsocomus puniceus, *Tickell.*

This Pigeon was very rare. I have only met with a single specimen, which I shot in the dense Evergreen Forest in the vicinity of China-Ba-keer. Its stomach contained a quantity of large plum-colored drupes. It was a female, and measured in the flesh :—

Length, 15·75 ; expanse, 26 ; tail from vent, 6·1 ; wing, 8·65 ; tarsus, 1 ; bill from gape, 1·05.

Irides, orange ; bill, purplish, tipped with horny ; legs and feet, purplish red.

795 *bis.*—Turtur tigrina, *Tem.*—(*Vide S. F., I.*, 461).

This Dove was one of the commonest birds I met with. Wherever the country is suitable for them, they occur in the greatest profusion. They frequent open thickets, and loose underwood and hedges, seeking their food on the ground, and roosting during the heat of the day in the thickets. The following is a

resumé of the dimensions of six specimens recorded in the flesh.

Length, 11·25 to 12·8; expanse, 16·5 to 17·75; tail from vent, 5 to 5·8; wing, 5·6 to 5·75; tarsus, ·95 to 1; bill from gape, ·95 to 1·05.

Irides, light or reddish brown, or salmon red; bill, dusky black; legs and feet, red.

797.—Turtur humilis, *Tem.*

This species was not abundant anywhere. It was generally met with in well-wooded districts; but occasionally in open ground in parties of four or five. A male and female measured respectively in the flesh:—

Length, 9·5 to 9·2; expanse, 17·5 to 16·2; tail from vent, 3·5 to 3·6; wing, 5·6 to 5; tarsus, ·85 to ·8; bill from gape, ·85 to ·8.

Irides, brown; bill, black; legs and feet, dusky purplish red.

[These specimens belong to the Malayan, and not the Indian form. They are, what I described under the name of *T. humilior* from the Andamans, but as I have already remarked in a recent paper on the birds of the Andamans, I think that Temminck's name "*humilis*" applies to this the Malayan, and not to the Indian form.—A. O. H.]

812.—Gallus ferrugineus, *Gmel.*

The Red Jungle-fowl was not uncommon in the wooded districts and evergreen forests in the vicinity of China-Ba-keer I have frequently dislodged a family of them from some densely foliaged shrub, to which they had resorted for shelter from the mid-day sun. A male shot at China-Ba-keer in December measured in the flesh:—

Length, 26; expanse, 26·5; tail from vent, 13; wing, 9; tarsus, 3; spur, 1·25; bill from gape, 1·2.

Irides, light red; comb wattles and lores, crimson; upper mandible, dusky black; lower mandible, dusky blacked, tipped paler; legs and feet, slaty grey.

843.—Glareola lactea, *Tem.*

This bird was rare. I have not seen more than three or four on the sands near Elephant Point. A male specimen measured in the flesh:—

Length, 6·5; expanse, 16·2; tail from vent, 2·15; wing, 5·5; tarsus, ·9; bill, ·75.

Irides, dark brown; bill, legs, and feet, black.

844.—Squatarola helvetica, *Gmel.*

I have only met with this species along the sandy portions of the beach, between Elephant Point and China-Ba-keer where

it was not uncommon. The birds are often seen in parties of from five to ten, but are generally associated with flocks of smaller birds, amongst which they may be readily distinguished by their much greater size. They are very wary and shy, and are always the first to set the example of flight to their smaller companions. The following are the dimensions of four males recorded in the flesh :—

Length, 11·8 to 12·75; expanse, 24 to 25; tail from vent, 3·3 to 3·5; wing, 7·6 to 7·7; tarsus, 1·8 to 1·9; bill from gape, 1·45 to 1·52.

Irides, dark brown; bill, legs, and feet, black.

845.—Charadrius fulvus, *Gmel.*

The Eastern Golden Plover was common enough all along the sea shore, but was found much more abundantly in the adjacent ploughed lands and cut paddy-fields, where they usually occurred in parties of variable numbers. Two males and two females measured in the flesh :—

Length, 9 to 9·75; expanse 18·7 to 20; wing, 5·9 to 6·5; tail from vent, 2·4 to 2·65; tarsus, 1·55 to 1·7; bill from gape, 1·05 to 1·2.

Irides, dark brown; bill, black; legs and feet, dark slate color.

846.—Œgialitis Geoffroyi, *Wagler.*

This species occurred in abundance along the sands and on the mud banks near Elephant Point. They were generally met with in small parties consorting with immense flocks of smaller Sand-plovers. Five specimens measured in the flesh :—

Length, 8·1 to 8·85; expanse, 17·75 to 19·25; tail from vent, 2·1 to 2·7; wing, 5·4 to 5·75; tarsus, 1·4 to 1·5; bill from gape, 1·05 to 1·15.

Irides, dark brown; bill, dusky black; legs and feet, greyish plumbeous.

847—Œgialitis mongolicus, *Pall.*

This species is extremely abundant. It occurs in immense numbers upon the sand and mud flats lying between Elephant Point and China-Ba-keer, as well as all along the eastern boundary of the mouth of the Rangoon river. The following is a *resumé* of the dimensions of five male and five female specimens :—

Length, 7 to 8·2; expanse, 15·5 to 17; tail from vent, 2 to 2·4; wing, 4·8 to 5·15; tarsus, 1·3 to 1·4; bill from gape, ·85 to 1.

Irides, dark brown; bill, black; legs and feet, dark slaty grey.

In one bird out of thirteen the wing measures 5·25: nevertheless it appears to belong to this species.

848.—Œgialitis Cantianus, *Lath.*

This Sand-plover is quite as abundant as *mongolicus*. The flocks of the two species usually intermingle and feed together in company. The dimensions of numerous specimens recorded in the flesh show the following result :—

Length, 6·5 to 7 ; expanse 13 to 14·2 ; tail from vent, 1·8 to 2·2 ; wing, 4·2 to 4·5 ; tarsus, 1·1 to 1·25 ; bill from gape, ·75 to ·95.

Irides, dark brown ; bill, black ; legs and feet plumbeous grey.

849.—Œgialitis curonicus, *Besck.*

Although only a single specimen of this bird was obtained, yet it is probable that it is not so uncommon as might be thence inferred. The specimen shot was one out of ten or twelve other birds belonging to the two allied species *mongolicus* and *cantianus*, from which, at a distance, it is impossible to distinguish it. The specimen was a female, and measured in the flesh :—

Length, 6·8 ; expanse, 13·2 ; tail from vent, 2·6 ; wing, 4·5 ; tarsus, ·92 ; bill from gape, ·7.

Irides, dark brown ; bill, black ; legs and feet, yellowish brown.

809.—Œdicnemus indicus, *Salvad.*

This bird appears to be rare. I have only seen a single specimen, which I shot in December at China-Ba-keer. It was lying in cover under some low scrub at the margin of the beach, and did not attempt to rise until I had almost placed my foot upon it. It then flew some twenty yards off, and squatted down on the sand. Thinking that it was a nestling, and that I might capture it alive, I was proceeding towards it when it again rose and settled down some little distance off, where it was shot. It was a male, and measured in the flesh :—

Length, 15 ; expanse, 29 ; tail from vent, 4·7 ; wing, 7·9 ; tarsus, 3 ; bill from gape, 2.

Irides, light lemon yellow ; basal portion of bill, glaucous yellow, tipped and margined with dusky black ; legs and feet, horny yellow.

870.—Gallinago stenura, *Tem.*

The Pintail Snipe was met with in great abundance at Rangoon Syriam, Eastern Grove, Elephant Point, China-Ba-keer, and the intervening district. It frequented alike paddy-fields, jheels, swamps, and grassy plains. Male specimens measured :—

Length, 10·2 to 10·5 ; expanse, 17·75 to 18·25 ; tail from vent, 2·3 to 2·6 ; wing, 5·2 to 5·3 ; tarsus, 1·35 to 1·4 ; bill from gape, 2·45 to 2·5.

876.—Terekia cinerea, *Gmel.*

The Avoset Sand-piper was by no means abundant. I only saw two or three specimens feeding along with Stints and Sand-plovers on the mud flats near Elephant Point. A male bird shot in January measured in the flesh:—

Length, 9·2; expanse, 16·75; tail from vent, 2·2; wing, 5·25; tarsus, 1·15; bill from gape, 2·25.

Irides, dark brown; basal third of bill orange dusky, thence shading into dusky black for the remainder of its length; legs and feet, bright yellow; claws, black.

877.—Numenius lineatus, *Cuv.*

This species was extremely abundant all along the coast from Elephant Point to China-Ba-keer, as well as along the eastern shore of the mouth of the Rangoon river. They were nearly always met with in parties varying from four or five to forty or fifty. They were always excessively wary and difficult to approach. The male bird is smaller than the female, more particularly in the length of bill. A male bird, shot near the Eastern Grove light house in February, measured in the flesh:—

Length, 21·5; expanse, ·38; tail from vent, 4·5; wing 11·1; tarsus, 3·1; bill from gape, 5·2.

A female shot in January at Deserter's Creek measured in the flesh:—

Length, 21·3; expanse, 40·75; tail from vent, 4·5; wing, 11·2; tarsus, 3·6; bill from gape, 7·2.

Irides, dark brown; upper mandible, dusky black; lower mandible, dirty pinky; white at base; remainder, dusky black; legs and feet, livid slaty grey.

878.—Numenius phœopus, *Lin.*

The Whimbrel, although abundant, did not occur in such large numbers as *lineatus*. It was for the most part solitary, but I have also met with in small parties of five or six. A male bird shot, on the banks near the mouth of the Rangoon river, measured in the flesh:—

Length, 17 5; expanse, 28; tail from vent, 3·8; wing, 9·2; tarsus, 2·4; bill from gape, 3·8.

Irides, dark brown; upper mandible, dusky black; basal two-thirds of lower mandible, fleshy white, terminal third dusky black; legs and feet, ashy grey.

881 *bis.*—Tringa crassirostris, *Tem. et Schleg.*—(*Vide* S. F., I, 240.)

This species was apparently rare. I only obtained a single specimen which I shot on the sands near China-Ba-keer.

They feed in company with other Stints of smaller species amongst which they are conspicuous by their size. The specimen shot was a male, and measured in the flesh :—

Length, 11·15; expanse, 23; tail from vent, 2·6; wing, 6·9; tarsus, 1·38; bill from gape, 1·9.

Irides, dark brown; bill, dusky black, paler at base of lower mandible; legs and feet, greenish dusky.

882.—Tringa subarquata, *Gmel.*

This was by no means a common species about the mouth of the Rangoon river, where alone I met with it. It was most abundant at low water, where it might be seen hunting for food in the soft mud close to the water's edge. At high water it was found amongst the fresh water jheels in the neighbourhood of Elephant Point. The following is a *resumé* of the dimensions of several species recorded in the flesh :—

Length, 8 to 9·2; expanse, 14·2 to 16·25; tail from vent, 1·8 to 2·2; wing, 4·9 to 5·25; tarsus, 1·18 to 1·25; bill from gape, 1·45 to 1·6.

Irides, dark brown; bill, legs, and feet, dusky black.

884.—Tringa minuta, *Leisler.*

This little Stint was extremely abundant all along the sea coast lying between Elephant Point and China-Ba-keer. It seemed, as a rule, to prefer the more sandy part of the shore, and did not appear to frequent the mud-banks, for even at low water it was always to be found feeding on the sand which was bordering the margin of the mud. The following is the result of the measurements of numerous specimens recorded in the flesh :—

Length, 5·75 to 6·5; expanse, 11·75 to 12·5; tail from vent, 1·8 to 2·1; wing, 3·75 to 4; tarsus, ·75 to ·8; bill from gape, ·75 to ·85.

Irides, dark brown; bill, legs, and feet, black.

With regard to the variations in the size of the wing in birds of this species from different localities, Mr. Hume says in "Stray Feathers," Vol., I., p. 243 :—"Amongst all my Indian killed specimens, male and female, in winter and in summer plumage, only one has a wing above 3·9; in the vast majority the wings are between 3·7 and 3·8; and in a few specimens the wings range between 3·6 and 3·7, and again in a very few between 3·8 and 3·9." Now out of ten specimens shot by me in Burmah, one only is as small as 3·75; two measure 3·8; two, 3·9; two, 3·92; and the remaining three reach a length of 4. Thus it would appear that the Burmese specimens attain a considerably larger average length of wing than those killed in India.

[Some of the larger specimens, at any rate, probably belong to the nearly allied *T. albescens*, Temminck, but I must confess myself unable to separate this species from *minuta*, in winter plumage, with any certainty.—A. O. H.]

886.—Tringa platyrhyncha, *Temm.*

This species was excessively common throughout the entire district lying between the mouth of the Rangoon river and China-Ba-keer. It was also common along the margins of all the creeks and nullahs in the vicinity, extending up the Rangoon river as far as the junction of the latter with its Pegu tributary. Four males measured in the flesh show the following result:—

Length, 6·5 to 7; expanse, 12·3 to 13·4; tail from vent, 1·5 to 1·9; wing, 4 to 4·25; tarsus, ·85 to ·95; bill from gape, 1·25 to 1·4.

Irides, dark brown; bill, legs, and feet, dusky black.

887.—Eurynorhynchus pygmœus, *Lin.*

The neighbourhood of Elephant Point at the mouth of the Rangoon river has not as yet been recorded as a locality from whence this remarkable species has been obtained. It seems to be of rare occurrence in that district, for although several days were spent by me in careful and systematic search for it, yet I was never able to see or to obtain more than a single specimen. The specimen referred to, was one of a score or more of other birds, belonging to the smaller species of *Œgialitis* and *Tringa*, which were all killed at one shot as they were feeding together in a common flock of many hundreds on the sand-banks fringing high water mark. It is a female in winter plumage, and was shot on the 1st of December. The following dimensions were recorded by me in the flesh:—

Length, 6·2; expanse, 12·15; tail from vent, 1·7; wing, 3·92; tarsus, 8·3; bill from gape, ·98; from forehead to tip, 1·05; from behind nares to tip, ·83; greatest width of upper mandible, ·41; ditto of lower mandible, ·38.

The irides are of a deep dark brown; bill, legs, feet and claws, black; mid toes, ·76 inches in length.

888.—Calidris arenaria, *Temm.*

This bird was somewhat rare. I have only met with it at Elephant Point where it feeds on the sands along with Sand-plovers and Stints. The following are the dimensions of a male bird recorded in the flesh:—

Length, 7·75; expanse, 15; tail from vent, 2·2; wing, 4·9; tarsus, 1; bill from gape, 1·15.

Irides, dark brown; bill, legs, feet, and claws, black.

891.—Actitis glareola, *Gmel.*

The spotted Sandpiper was tolerably abundant on the Sand-banks between Elephant Point and China-Ba-keer. A male specimen recorded in the flesh measured :—

Length, 9·15 ; expanse, 14·75 ; tail from vent, 2·1 ; wing, 4·8 ; tarsus, 1·5 ; bill from gape, 1·45.

A female measured in the flesh :—

Length, 8·3 ; expanse, 14·5 ; tail from vent, 2 ; wing, 4·85 ; tarsus, 1·55 ; bill from gape, 1·3.

In both the irides were dark brown; bill, dusky black, except near base where it was greenish; legs and feet, slaty green.

893.—Tringoides hypoleucos, *Lin.*

The common Sandpiper was not very abundant anywhere. It was usually met with in small parties in cultivated land and ploughed fields and on the margins of tanks and jheels. The following is a *resumé* of the dimensions of several specimens recorded in the flesh :—

Length, 7·6 to 8 ; expanse, 13 to 13·8 ; tail from vent, 2·2 to 2·45 ; wing, 4·2 to 4·3 ; tarsus, ·92 to 1 ; bill from gape, 1·05 to 1·2.

Irides, brown ; legs and feet, greenish brown.

894.—Totanus canescens, *Gmel.*

This species was very abundant in all the jheels and along the margins of the mud flats in the vicinity of Elephant Point. They were usually solitary, but were frequently met with in parties of three or four. The measurements of several male specimens recorded in the flesh show the following result :—

Length, 13·2 to 14·25 ; expanse, 22 to 23·5 ; tail from vent, 3·2 to 3·5 ; wing, 7·4 to 7·8 ; tarsus, 2·5 to 2·62 ; bill from gape, 2·3 to 2·4.

The females are somewhat smaller. A specimen of this sex measured in the flesh :—

Length, 13·25 ; expanse, 21·6 ; tail from vent, 3·1 ; wing, 7·15 ; tarsus, 2 25 ; bill from gape, 2·32.

In all the irides were dark brown ; bill, dusky black ; legs and feet, slate green ; claws, black ; length of mid-toe and claw, 1·5.

894 *bis.*—Totanus Haughtoni, *Nobis, Sp. Nov.*

Amongst the numerous varieties of shore birds, killed on the sand and mud flats, between Elephant Point and China-Ba-keer, is one, of which I have secured two specimens, which appear to be new to ornithology.

I propose to describe this presumably new species under the above name, dedicating it to my valued friend, the Rev. Professor Haughton, of Trinity College, Dublin, whose labors have done so much to enlarge the field of Natural History research.

The species appears to be decidedly rare throughout the entire district. I have never seen more than the two specimens obtained, both of which were shot in December at China-Ba-keer, as they were feeding on the extensive sand banks in that locality, in company with a large flock of Sand Plovers. It bears a striking general resemblance to specimens of *Totanus canescens*, Gmelin, from which, however, as well as from all other Indian species belonging to the same sub-family, it differs conspicuously, in the comparatively much longer, broader, and more massive bill, in the much shorter length of tarsus, as well as in the unusual fact of the three anterior toes being united to each other by a membrane.

The following are the dimensions and a description of the bird founded upon the measurements recorded in the flesh of the two specimens obtained at China-Ba-keer :—

	Length.	Expanse.	Wing.	Tail from Vent	Tarsus.	Bill from Gape.	Bill at Front	Bare Portion of Tibia.	Mid-toe and Claw.	Hind-toe and Claw.
♂	13·2	23·25	7·3	3·0	1·85	2·5	2·1	0·95	1·5	0·52
♀	12·9	22·5	7·0	3·0	1·65	2·2	1·93	0·86	1·4	0·5

In both specimens the irides are dark brown; bill, horny yellow near the base, fading into dusky for the terminal half, which is tipped with black; legs and feet, dull ochreous yellow; claws, black.

Feathers of crown, occiput, back of head, scapulars, and upper back, of a uniform cinereous grey, each with a dark central longitudinal stripe, which is darker and more pronounced in the interscapular region. Lower back, rump, and upper tail coverts, white, the feathers of these parts having near their extremities one or two ill-defined, dusky blotches, which on the upper tail coverts become developed into a pair of more or less clearly defined, V-shaped, transverse bars. Forehead and præ-orbital region of a much lighter grey, and more mixed with white than the other portions of the head. The throat and front of the neck, the entire breast and abdomen, the under-tail coverts, as well as the axillary plumes and under-wing coverts are pure white. On the sides of the neck the feathers are also white, but each has here a dark narrow shaft stripe, thus giving a lineo-punctate appear-

ance to that portion of the bird. The tail, which is short and nearly even, is greyish white, margined and tipped with pure white, the two central feathers alone are brownish, and more narrowly margined with white than the others. The wings are long and pointed ; the primary quills and their coverts are of a rich hair brown, faintly margined with lighter brown on their outer webs. Secondary quills with their coverts, dusky brown, each with a well-defined white margin and tip, which, however, is much narrower on the quills, but is broader and clearer on the coverts. The tertiaries are long and plume-like, of an ashy brown color, the shafts being of a much darker color than the webs. Along the entire length of the radius and angle of the shoulder, there is a well-defined line of demarcation between the dark hair brown of the upper, and the pure white of the under surface. The shaft of the first quill feather is pure white, all the others being of a more or less pronounced brown. First quill longest, second about a quarter of an inch shorter. The bill is long, broad, and massive, slightly recurved for its terminal third, and with both mandibles grooved one for a little more than half their length. The end of the upper mandible is slightly expanded, and has its point bent down over the lower. The nostrils are linear and sub-basal, a little over quarter of an inch in length, and nearly that distance from the most anterior feathered portion.

The tarsi are short and somewhat slender. The toes also are slender, the three anterior being united to each other by a membrane, which, extending on either side of the middle toe from the distal extremity of its proximal phalanx, reaches well down to a similar point in the inner, and nearly to the distal extremity of the second proximal phalanx in the outer.

[The present species which I believe to be new* is a very puzzling one. The following is a brief diagnosis :—

In winter plumage resembles generally Totanus canescens, *but has a much broader and more massive bill, a much shorter tarsus* (*male* 1·85 ; *female*, 1·65), *and the webs between the* 3 *anterior toes very much more developed. Wings*, ♂, 7·3 ; ♀, 7·0; *bill at front*, ♂, 2·1 ; ♀, 1·93.

It is by no means a typical *Totanus*, and in its short tarsi and much webbed feet recalls *Pseudoscolopax semipalmatus*, but then the bill is much shorter (in a specimen of this latter now before me the bill is 2·9 at front) and of a different character, wholly wanting the tumid multi-pitted ends of that species,

* If *not* new, I am responsible for the creation of an useless synonyme and not Dr Armstrong. *Prima facie* it is difficult to believe that it can be new but I have diligently worked up the whole group and can find nothing that agrees well with our specimens.—Ed.

and the membrane between the outer and middle toes, is also proportionately larger.

The bill is something like that of *Tringa crassirostris*, but stouter, broader, and longer, and with the lateral grooves extending only for 11-20ths of the length of the bill, and this peculiarity, of course, equally with the comparative shortness of the bill separates it from the God-wits in which the lateral grooves run quite or very nearly to the point.

Again the webbing of the feet reminds one of *T. semipalmatus*, Gmel. but that is altogether a larger bird, (wing 8·25,) with a longer and much slenderer bill (at front, 2·42) with very much longer tarsi (2·58), and a huge, unmistakable, white patch on the wing.

In the short tarsus and stout bill, this species is allied to *T. incanus*, Gmelin, but that is a decidedly a smaller bird, with as extreme dimensions, wing, 6·95; tarsus, 1·37; and bill at front, 1·55; with a proportionally longer and more rounded tail, and shorter mid toe, with a less stout bill, and scarcely any webbing to the feet. The plumage further of our birds (at any rate in winter, for we know as yet nothing of the summer garb) differs entirely from that of the Ashcolored, Yellow-shanks, indeed to a casual observer is precisely that of the Green-shanks.

On the other hand the bill is not a bit that of a typical *Totanus* compressed throughout, and tapering from the base, and I see that Dr. Finsch places the species (*incanus*), the bill of which most resembles that of our bird, under *Actitis*.

Possibly, these birds should form the type of a distinct genus, which might be thus defined:—Bill considerably longer than the head, stout, nearly straight, but the culmen perceptibly recurved, tapering quite at the base, after that of nearly uniform width throughout, rather obtusely pointed just at the tip, which is bent down over the lower mandible. Culmen broad, slightly flattened towards the tip. Nostrils, lateral, sub-basal (commencing nearly a quarter of an inch from the base) placed in a membranous groove which extends rather beyond half the length of the bill (say 11-20ths.) The wings reaching considerably beyond the end of the tail and pointed. The first quill longest; tail, moderate and nearly even. Tarsi, slender, one-fifth longer than mid toe and claw, covered in front by numerous narrow faintly marked scales. Toes, slender, moderately long, anterior toes united by a membrane. The outer and middle toes quite to the first joint of the middle, nearly, if not quite, to the second joint of the outer. The inner and middle to the first joint of both, but the membrane rather deeply scalloped. Hind toe, long, slender somewhat elevated.

I do not, however, think generic separation necessary and prefer to consider this an aberrant species of *Totanus*.—A. O. H.]

895.—Totanus stagnatilis, *Bechst.*

This species, though not scarce, was by no means abundant. It was more frequently met with on the margins of the tidal nullahs and creeks, than on the extensive mud flats at the mouth of the river. Specimens measure in the flesh:—

Length, 10·2 to 10·7; expanse, 15·5 to 16·2; tail from vent, 2·6 to 2·85; wing, 5·2 to 5·3; tarsus, 2 to 2·03; bill from gape, 1·7 to 1·75.

Irides, dark brown; bill, dusky greenish black; legs and feet, greenish plumbeous.

[Of two specimens killed on the 28th February, one was in winter plumage, and the other in almost perfect summer plumage.—A. O. H.]

897.—Totanus calidris, *Lin.*

This species was extremely abundant, occurring in large quantities both on the shore between Elephant Point and China-Ba-keer, and along the margins of the numerous nullahs and creeks in the vicinity. They generally associate in large flocks, which do not appear to hunt for food in company with other birds of different species. The combined effect produced by the red legs of a large flock of these birds is very striking, having the appearance of a large red patch moving about on the sands. In this way they may be recognized with facility from a considerable distance. Male birds measure in the flesh:—

Length, 10·35 to 11·29; expanse, 19·4 to 19·8; tail from vent, 2·5 to 2·8; wing, 6·8 to 6·3; tarsus, 2 to 2·1; bill from gape, 2·05 to 2·15. The females are somewhat smaller, and give the following measurements in the flesh:—

Length, 10·75 to 11·25; expanse, 18·75 to 19·5; tail from vent, 2·5 to 2·7; wing, 5·8 to 6·1; tarsus, 2 to 2·1; bill from gape, 1·9 to 2.

In both male and female the irides are dark brown; the bill, dusky red for basal third, from thence to tip dusky black; legs and feet, orange red.

900.—Metopodius indicus, *Lath.*

I only met with this bird in the jheels and tanks which were overgrown with aquatic plants and grasses. In these localities it was extremely abundant, lying so close amongst the vegetation, that frequently it would not rise until I had got so near as almost to be able to touch it. A fine male bird in the full black plumage of the adult was shot by me

in one of these jheels near Elephant Point on the 31st December. It measured in the flesh :—

Length, 11·5 ; expanse, 20·5 ; tail from vent, 1·75 ; wing, 6·35 ; tarsus, 2·5 ; bill from gape, 1·4 ; hind toe and claw, 3·4.

Irides, dark brown ; the shield and cere extending down as far as the nares, greenish olive ; bill, greenish, shading into reddish white at base and gape ; legs and feet, dull dusky green.

Another male bird in what Mr. Oates considers to be the plumage of the young bird in its second spring was shot near the same locality on the 20th February, and the following particulars were recorded in the flesh :—

Length, 11·45 ; extent, 2·22 ; tail from vent, 1·8 ; wing, 6·7 ; tarsus, 2·45 ; bill from gape, 1·4 ; hind toe and claw, 3·1.

This specimen is well advanced in the transition stage from the light to the dark plumage. The rufous of the head has been almost entirely replaced by deep metallic green concolorous with the back of the neck, and amongst the buff feathers on the side of the neck numerous dark green feathers have begun to make their appearance, but no change whatever has as yet taken place in the under parts.

It may be worth while remarking that the dimensions recorded of this specimen very considerably exceed those given by Mr. Oates for young males measured by him, and in some particulars are greater even than the dimensions of the adult male in black plumage, as recorded by that gentleman. (See "STRAY FEATHERS," Vol. III, p. 184.)

913.—Hypotænidia striata, *Lin.*

I only saw this species in marshy ground in the vicinity of Syriam, where it was decidedly scarce. A male specimen shot on the 16th February measured in the flesh :—

Length, 10·3 ; expanse, 16·2 ; tail from vent, 1·8 ; wing, 4·75 ; tarsus, 1·47 ; bill from gape, 1·7.

The irides were of a light yellowish brown ; upper mandible, dusky brown, except at the gape where it was orange ; lower mandible, orange, shading into dusky brown for its terminal third ; legs and feet, plumbeous green.

929.—Bubulcus coromandus, *Bodd.*

The Cattle Egret was met with in great abundance throughout the entire district. It frequented the mangrove swamps and tidal jungle lying between Elephant Point and China-Ba-keer, perching, as a rule, upon the low mangroves and other bushes in those localities. It was also very abundant at a considerable distance from the shore, probably attracted by the herds of buffaloes, a large number of which are kept for agricultural purposes by almost every Búrman in that region, and which,

when let out to graze, were almost invariably accompanied by a considerable party of these birds. The following is a *resumé* of the dimensions of numerous specimens recorded in the flesh :—

Length, 19·2 to 20·2; expanse, 32 to 34·5; tail from vent, 3·2 to 3·6; wing, 9·3 to 9·9; tarsus, 3·3 to 3·7; bill from gape, 3·4 to 3·45; mid-toe and claw, 3·1 to 3·15.

Irides, yellowish white; orbital skin, pale yellowish green; bill, yellow with a greenish tinge at the base; legs and feet, black; mid-toe claw, pectinated on inner margin.

930.—Ardeola Grayii, *Sykes.*

This species was extremely common and abundant in every nullah and creek near the mouth of the Rangoon river as well as all along the shore intervening between Elephant Point and China-Ba-keer. They frequented the mud flats when the tide was low, and generally at high water resorted to the mangroves bordering the shore or neighbouring nullahs. Male birds appear to be somewhat larger than the females. A fine specimen measured in the flesh :—

Length, 15·2; expanse, 25·75; tail from vent, 2·9; wing, 8·65; tarsus, 2·3; bill from gape, 3·2.

Females.—Length, 14·25 to 14·6; expanse, 23·2 to 23·8; tail from vent, 2·55 to 2·65; wing, 7·55 to 7·6; tarsus, 1·9 to 2·2; bill from gape, 3·1 to 3·15.

937.—Nyctiardea nycticorax, *Lin.*

The night Heron is undoubtedly rare.

I only met with a single specimen which I shot in the upper branches of a large tree over-hanging a nullah near Elephant Point. It was a male, and measured in the flesh:—

Length, 23; expanse, 40·6; tail from vent, 4; wing, 11·5; tarsus, ·3; bill from gape, 4·1.

The irides were rich crimson; upper mandible, dusky black, irregularly blotched near the base with greenish; basal half of lower mandible, greenish horny, terminal half dusky black; legs and feet, light ochrish yellow; claws, horny black.

980.—Larus brunneicephalus, *Jerd.*

This Gull, which was the only species met with, swarmed at the mouth of the Rangoon river, and about China-Ba-keer, and was also present in abundance throughout the intervening district. Specimens measure in the flesh :—

Length, 17 to 18·2; expanse, 38·75 to 44·25; tail from vent, 4·8 to 5·2; wing, 12·4 to 13; tarsus, 1·75 to 2; bill from gape, 2·15 to 2·25.

Irides, white; bill, orange red, tipped and margined with dusky; legs and feet, red.

983.—Sterna nilotica, *V. Hasselq.*

This species was met with in abundance along the shore lying between China-Ba-keer and Elephant Point. It always preferred hunting for its prey at the water's edge, so that it was only possible to secure specimens at high water, in consequence of the impossibility of crossing the broad mud flats, which at low water intervene between the beach and the margin of the water. Specimens shot measure in the flesh :—

Length, 12·5, 14·25 ; expanse, 34·25, 39·75 ; tail from vent, 4·, 5·5 ; wing, 11·25, 12·2 ; tarsus, 1·2, 1·4 ; bill from gape, 1·9, 2·4.

A First List of the Birds of the Travancore Hills.

For the last two or three years Mr. Frank Bourdillon has been very kindly sending me, from time to time, small despatches of birds from Southern Travancore, chiefly collected in and at the base of the range of mountains locally known as the Assamboo Hills, which commencing near Cape Comorin, run up thence nearly due northwards. Ninety species having thus accumulated, many of them of great interest, Mr. Bourdillon has kindly favoured me with a brief description of the physical characteristics of the locality in which these specimens were collected, together with notes in regard to most of the species, which will be found reproduced under his initials, in the subjoined list. A great number of the specimens had been carefully measured in the flesh. In all such cases I have copied the dimensions from the tickets. A few species have been inserted in the list by Mr. Bourdillon on his own authority, as he felt certain of their identity.

Mr. Bourdillon says :—

"It is with considerable diffidence that I accede to Mr. Hume's request for a short introductory note to his list of birds collected by me in South Travancore, feeling confident that, through defective information, I shall have to omit many points of interest which might be advantageously introduced in a paper of this kind. However, in the hope that a preliminary notice in "Stray Feathers," may induce other and abler ornithologists with equally favourable opportunities to co-operate in working out and recording the avi-fauna Travancore, I venture to offer a few remarks on the locality in which my specimens were collected.

"This is a portion of that range of hills, which, commencing within a few miles of Cape Comorin, stretches northwards, with slight interruptions, along the western coast, and forms the chief

geographical feature of the southern extremity of the Peninsula.

"The greater number of the specimens, however, were collected within a few miles of the Ponmudi (Golden crown) Peak, a hill of merely local importance and no great height, some twenty miles due east of Trevandrum, the capital of Travancore.

"Of these hills, which rise rather abruptly from the level of the plains or coast line, the average altitude is 4,000 feet, a few peaks reaching 5,000 feet, and only one being credited with an elevation of 6,000 feet above sea level.

"Their chief physical feature is a dense growth of evergreen forest, containing much valuable timber, the greater part of which, owing to the want of proper communication with the coast, remains any thing but a source of revenue to the Government. The dull monotony of this expanse of forest is broken occasionally by bold and precipitous cliffs, while the more exposed ridges and outlying spurs are clothed with a short rank grass. This grass, in a more forcing climate at the foot of the hills, attains great luxuriance, and with a sparse sprinkling of trees, covers almost the whole of the country from the base of the hills to the limit of cultivation along the coast line.

"The annual rainfall is abundant averaging in different parts from 150 to 180 inches, but, owing to the steep slope of the hills, there are no large natural reservoirs, and as a natural consequence, the representatives of the wading and swimming birds are few and scarce. The climate of the hills much resembles that of the central province of Ceylon, with this difference that in Travancore there is nowhere the same variation as may be observed between the climates of the highest and of the lowest parts of the Ceylon mountain range.

"On the Travancore hills at an elevation of 2,500 feet the average temperature may be stated at 75° F.

"The seasons may roughly be divided into two monsoons, *viz.* that in which the prevalent winds are from the S. and S. W., extending from April to September, and that lasting over the other six months of the year, when winds from the E. and N. E. more generally obtain. Of these two seasons, on the *western* slope of the hills the south-west monsoon is characterised by a more copious rainfall (in June and July often as much as 40 and 25 inches), and by a more equable temperature, with occasional severe gusts of wind. The north-east monsoon is usually ushered in by short but violent downpours of rain, accompanied by storms of thunder and lightning in October. The amount of rain decreases each month

and is replaced during the last two months of the year, by an almost incessant hurricane of wind, which comes sweeping over the hills and temporarily almost denudes of their leaves the coffee plantations of the Europeans who have settled on the hills.

"The average temperature is at its lowest in December and January, rising again during February and March, till the heat towards the end of the latter month becomes trying to European and native alike, and causes a considerable amount of sickness and fever until the rains carry off to the sea the large amount of decaying vegetable matter, which collects in the forest during the windy and dry months.

"Amongst birds, the winter visitors, as far as I have yet been able to observe, begin to arrive in September and stay till the end of April, the earliest to come and the latest to depart being the little Grey and Yellow Wagtail (*Calobates melanope*). In addition to the winter visitors there are other birds permanent residents of the plains—which only ascend the slopes of the hills during the two or three hot months (February to April). Of these, perhaps the common Coucal (*C. rufipennis*) and the Cotton-thief (*T. paradisi*) are the most obvious examples.

"During the S. W. monsoon one hears nothing but the occasional croak of a Fruit Pigeon, and during the rare gleams of sunshine Mynahs and Racket Tails make an effort to appear lively. The only living thing, setting aside slugs and leeches, that seems to enjoy the persistent rain, is the Whistling Thrush (*M. Horsfieldi*), who has a high old time of it, picking up snails and such like petits morçeaux, from dreary morn to dismal eve.

"Of the larger animals indigenous to the hills, we have amongst quadrumana two species of black monkey (*Presybtis* *?) and at least one of grey (*Macacus*?), the latter being held in some sort of superstitious veneration by the natives, while both of the former are eagerly sought for as a variation of the usual curry and rice diet. Of the carnivora, tigers are not uncommon, occasionally doing much damage when herds of cattle are kept, but rarely causing loss of human life. Leopards also are not rare, though seldom met with, an entirely black and rather smaller variety being somewhat more scarce. Wild dogs (*Cuon rutilans*), are numerous and are said to destroy large numbers of deer and pigs. The jackal (*Canis aureus*) on the other hand, rarely, if ever, ascend the hills, though common along the coast line.

* ? *P. jubatus*, Wagner, and *P. johnii*, Fisher, and *M. radiatus*, Kuhl.—Ed., S. F

"Of Rodentia the only remarkable examples are the large black and red squirrel (*Sciurus malabaricus*); and the brown flying squirrel (*Pteromys petaurista*), both of which animals exist in great numbers in the heavy forest; we have also, though in less numbers, the common porcupine (*Hystrix leucura*). Among the carnivora, I should not have omitted the S. Indian bear (*Ursus labiatus*), which may be found in suitable localities, and labours under the same evil character amongst the natives, as that attributed to the Ceylon animal by the Cingalese.

"Among the deer tribe, the Sambhar (*Rusa Aristotelis*) and the little mouse-deer (*Moschus memimna*) are the most common on the hills proper, while in the jungles at the foot of the range, the spotted deer (*Axis maculatus*) is more abundant. On the higher grass ridges may sometimes be observed large herds of the Neilgherri ibex (*Hemitragus hylocrius*,) and I myself on one occasion during the breeding season counted over forty of these animals together. I believe neither the neilghai, nor black buck is found in any part of Travancore, though the latter occurs in great force on the plains along the Eastern coast. Great numbers of bison, as they are misnamed (*Gavaeus gaurus*), roam about the hills at all seasons, descending to the lower jungles when the April rains help the young grass to spring up amongst the ashes caused by the annual forest fires.

"Elephants also, though nowhere in the south collecting into large herds, may generally be found with the assistance of the hillmen as trackers, to whom they are a source of great terror, and who readily assist in their destruction.

"Owing to the inroads of the elephants on their patches of cultivation, the hill men in the wilder jungles live almost entirely in little huts built among the boughs of some large tree, which they ascend by means of a bamboo tied round the stem and forming a sort of ladder.

"The wild boar (*Sus indicus*) occurs in great numbers, but owing to the nature of the ground and the density of the jungle he is no where hunted on horseback.

"I must not conclude without recording my obligations for assistance in the collection of my specimens to Messrs. T. Fulton Bourdillon and H. S. Ferguson, who have both sent me several species which I have not myself obtained."

LIST OF SPECIES.

(The numbers are those of Dr. Jerdon's Birds of India, and of my catalogue)

14.—Hypotriorchis severus, *Horsf.*

"Is I believe only a winter visitor, though (without having taken a nest) I have reason to think that it breeds here. The

cry of this bird is rather shriller and weaker than that of the Kestril.—F. W. B."

A male adult shot at Kowdiar, April 27th, measured in the flesh :—

Length, 10·75 ; expanse, 26 ; wing, 9·25 ; tail, 4·5 ; tarsus, 1·36 ; bill from gape, 0·9.

17.—Tinnunculus alaudarius, *Lin.*

"The Kestrel is also a winter visitor, and breeds on the hills. On one occasion I noticed a pair of old birds feeding their young in a nest perched on the ledge of an inaccessible rock, at an elevation of about 2,800 feet, during the month of April.—F. W. B."

Two males killed, Mynall in December and Erridgé in March, both belong to the slightly smaller and markedly deeper-coloured race, resident in the southern portion of the Peninsula of India, where they breed in the Neilgherries and Pulneys, and probably the other hilly ranges, such as the Anna muleys and the Assamboo Hills.

A male measured :—Length, 13·12 ; expanse, 25·5 ; wing, 9·37 ; tail, 7 ; tarsus, 1·37 ; bill from gape, 0·7.

22.—Lophospiza trivirgatus, *Tem.*

"A resident appearing to prefer heavy jungle. I know nothing of its breeding habits.—F. W. B."

A young male killed at Mynall on the 6th August at an elevation of about 2,000 feet, clearly, as might be expected, belongs to the true *trivirgatus* race, which is markedly smaller than the race (*L. indicus*, Hodgs.) which occurs in Sikhim, Cachar, and Burmah. It measured in the flesh :—Length, 15 ; expanse, 27·5 ; wing, 8 ; tail, 7·25 ; tarsus, 2·36 ; bill from gape, 1·06.

The bill was black ; the gape, tarsi, and feet, greenish yellow ; claws black ; irides, sulphur yellow.

32.—Neopus malaiensis, *Reinw.*

"A resident on the hills, not uncommon from 500 feet elevation and upward. I have never seen any make an attempt to seize a full-grown bird, but have once or twice seen one carry off a nest in its claws and examine the contents as it sailed lazily along. It is a very silent bird and may be seen steadily quartering backwards and forwards along the side of a hill, and in and out amongst the tree tops.—F. W. B."

A male of the Black Kite Eagle, still showing traces of the young plumage, killed at Mynall measured :—

Length, 27 ; expanse, 64 ; wing, 20·62 ; tail, 13·5 ; tarsus, 3·25 ; bill from gape, 2 ; inner toe, 1·45 ; its claw straight

from root to point, 1·45; mid toe, 1·72; its claw straight from root to point, 1·08; outer toe, 1·1; its claw straight, 0·63; hind toe, 1·1; its claw straight, 1·4.

35.—Spizaetus cirrhatus, *Gmel.*

"Perhaps the handsomest eagle of the hills, not so common as either the Black Kite Eagle, or Harrier Eagle. It is very daring, frequently making a dash amongst the chickens, when, if it misses its stroke, it retires to some neighbouring tree to concert a fresh plan of attack, if not shot or driven off. When approached in this position, it raises its crest very conspicuously. Though not yet fortunate enough to take a nest, I think this species must breed on the hills, for I once saw a young bird barely able to fly.—F. W. B."

I do not think that the gradual changes of plumage of this species from youth to maturity have been anywhere very clearly noticed. Without entering into an elaborate description, I think I can with the series before me, obtained in Travancore, the Neilgherries, Seone, Raepoor, Mundla, and other localities in the Central Provinces, Mount Aboo and Etawah, give some idea of the normal changes of plumage.

I may mention here that Mr. Sharpe, in his Catologue I. p. 270, records a specimen of this species from Nipal. I have seen an enormous number of *Spizaeti* from Sikhim and Kumaon as well as other parts of the Himalayas, but never one referable to this species, only *nipalensis* from the higher hilly region, and *caligatus*, as well as *nipalensis* from the lower hills, and either there is some mistake as to the species, or the locality, whence the specimen was obtained has been wrongly recorded.

The youngest birds of *cirrhatus*, when they first issue from the nest, have the entire head, neck all round, chin, throat, and entire under-parts, white; only on the crown and sides of the neck is there a slight fulvous tinge, and a few of these feathers have linear, brown, shaft stripes, and the flanks and the upper portion of the tibia have a pinkish fawn-coloured tinge. The entire chin, throat, breast, abdomen, absolutely pure spotless white. The crest black, with usually very little white tipping. The tertiaries and secondary greater coverts, conspicuously margined with white, the tail with 6 or 7 transverse darker brown bars, besides the sub-terminal one, which is not wider than the others.

A little later a buffy fawn-coloured tinge spreads over the whole head and sides of the neck, a few of the feathers of the breast get a faint tinge of the same colour and these exhibit a linear shaft stripe. On the abdomen many of the feathers get a fawn-coloured spot towards their tips, and a tint of the same

colour pervades portions of the vent feathers and lower tail coverts.

Later again the whole head, nape, and sides of neck, become a warm fawn brown, all the feathers now shewing narrow, blackish, shaft stripes. The lower parts are still chiefly white, but almost all the feathers of the breast and abdomen have a more or less triangular, brownish, fawn-coloured spot at the tip, and shew a tendency to a dark shaft stripe; and in some birds, at this time several of the feathers of the lower throat have conspicuous narrow black shaft stripes. The sides become fawn brown, though the feathers still are mottled white at the bases and the shafts are darker; the thighs, vent feathers, and lower tail coverts are now a warm, but brownish fawn colour, somewhat irregularly barred with white; the tail has now only four bands besides the sub-terminal one, which has become conspicuously broader. [Sometimes the young bird, before exhibiting any black streaks on the side of the neck or on the throat, becomes a nearly uniform warm fawn colour on the entire lower surface, and even retains this plumage until it has acquired the adult tail. I do not understand this, it is certainly none of the normal stages from the nestling to maturity, but as it occurs it is necessary to record it.]

Then (to return to the normal stage of progression), the black striping of the head, back, and sides of the neck, becomes more conspicuous; a black central throat stripe begins to be indicated, the warm fawny tint of thighs and vent becomes replaced by a wood brown, the black shaft stripes of the breast become more oval, and the tail begins to approach the normal type with only three transverse bars besides the sub-terminal one.

Gradually the brown of the vent and flanks creeps up to the lower breast; the breast spots grow larger and larger, and ultimately the white margins of the feathers almost wholly assume the brown tint of the abdomen. The entire white chin and throat have the feathers so broadly striped, centrally, with black, that only just enough white peeps through to give indications of a separation between a black throat stripe, and two broad black moustachal stripes.

The brown of the head and sides of the neck, though still warm, has lost the fawny tinge of the younger stages, and the black centres of the feathers have greatly increased in size.

The tail has a very broad terminal band, of say 1·8 and interspace of 2, and three other bands each about an inch broad. The crest quite black and untipped, grows to a great length; in one specimen before me it is over 4·75 inches long.

While these changes have been going on, the whole upper plumage has been growing darker.

As to the white tipping to the crest, this is very irregular, the youngest birds and the oldest most generally want it; birds of intermediate ages generally have it; but in several cases I notice of two birds, in precisely the same stage, that one wants, and the other exhibits it.

39 *bis.*—Spilornis melanotis, *Jerd.* *S. minor,* Hume. ? *S. albidus,* Cuv.

"The Harrier Eagle is commoner than the Black Kite Eagle, but though sometimes making an attempt on the fowl-yard, it is generally rather shy. It has a loud clanging scream, which the bird utters while soaring high in the air.—F. W. B."

Two males of this species are typical examples of the smaller southern race which I designated *minor*, and which it is said should, if distinct, stand as *albidus*, Cuvier.

The birds are not only smaller, *very much smaller* than *S. cheela* of the Himalayas, but they look very different, and the conspicuous absence of all striation on the breast catches the eye at once.

The following are the measurements in the flesh of two males, one an old adult, the other a young bird just beginning to pass into the adult plumage:—

Adult—Length, 25; expanse, 48; wing, 17; tail, 12·25; bill from gape, 1·8; tarsus, 3·75.

Young—Length, 24; expanse, 50; wing, 15·75; tail, 10·75; tarsus, 3·87; bill at gape, 1·8. In this latter, killed in March, the cere and bare space round the eye were yellow; the legs and feet were dirty yellow; claws, black; the irides, pale, clear yellow; the base of bill and gonys, plumbeous; the tip, black.

47.—Buteo plumipes. *Hodgs.* Beng. Sp. Mag. p. 182, 1836.—P. Z. S. 1845, p. 37.— B. *rufiventer,* Jerd. 1847.—*Falco buteo japonicus,* Tem and Schl. 1850.

"This bird, a winter visitor, seems to be not uncommon during December, January, and February, preferring high open country, where two or three may be seen steadily quartering the ground and occasionally pouncing on some mouse or lizard. I have seen them perch both on trees and on stones, and once saw one as low as 2,000 feet elevation, where it was beating backwards and forwards over a field of young coffee.—F. W. B."

The single specimen sent from Travancore by Mr. Bourdillon belongs, I believe, unquestionably to Hodgson's species, *plumipes.*

I have long since come to the conclusion that the Himalayan and northern Pegu Buzzards which I identified with *japonicus,*

(Schlegel) were identical with *plumipes*, and I see that Mr. Sharpe having Japanese and Chinese specimens to compare, has united the two.

Having now obtained a specimen of this species from the hills of Southern India and having specimens from the Himalayas agreeing precisely with his plate, I cannot doubt that Dr. Jerdon's *B. rufiventer* from the Neilgherries, *a male* with a wing of 15, belonged to this species, and not to *B. desertorum*, of which Mr. Sharpe says, that the wing never exceeds 15, and of which Schlegel gives 15·3 as the extreme limit; clearly if the wing never exceeds 15·3 in females, no male could in this division of the Buzzards have the wing 15.

I have recently had to review my whole series of Indian Buzzards, nearly 200 specimens in all; and I take this opportunity of stating the conclusions at which I have arrived after some days' careful study. I am the more anxious to do this, because my present views differ in some respects from those that I have previously recorded. The species of Buzzards that I would now admit into our Indian avi-fauna, are:—

1. Buteo ferox, *S. G. Gmelin*, (1769.)
2. „ aquilinus, *Hodgs.* (Blyth J. A. S. B. 1845*)
3. „ plumipes, *Hodgson* (as above).
4. Archibuteo hemiptilopus, *Blyth* (1846)—strophiatus, *Hodgs.* (1844)—*sine descr.*—leucoptera, *Hume* (S. F. I. 318).

It will be observed that I no longer admit *desertorum* to our list; for a long time past I have only retained this species on the strength of Dr. Jerdon's *rufiventer*, and now, that I have obtained a specimen from Southern India and have convinced myself that it is inseparable from *plumipes*, I feel compelled to exclude the African species from our avi-fauna.

At one time I separated the slightly smaller and more rufous specimens of *ferox*, so common in the Himalayas and considered these to represent *desertorum*; but even at the time ("Rough Notes," pp. 268 to 269, and *note*), I remarked that our birds seemed to be too large with reference to the dimensions given by European authors, as also with reference to those of a fine male from South Africa in Colonel Tytler's collection, and I added of this latter.—"In plumage it greatly resembles some of our Himalayan birds, but is *much* smaller than any of these. Personally, I feel by no means satisfied that our Indian bird is *desertorum*."

Mr. Dresser, in his recent article on this species, quotes my remark that *desertorum* "is confined to the Neilgherries and

* It is impossible to say whether this name or Hodgson's other name, *leucocephalus*, should stand. This latter was read at the Zoo, on the 8th April 1845, but when the record of this reading was *published* I cannot ascertain. *Aquilinus* appeared in the J. A. S. B. for 1st April 1845, but when this actually appeared is doubtful. The numbers were often months in arrears.—Ed., S. F.

Himalayas, and appears not to be uncommon anywhere in these latter hills, from Murree to Darjeeling."

This remark, however, must now be considered to be cancelled; the birds that I assigned to *desertorum* from numerous parts of the Himalayas were only, I am now convinced, small specimens of *ferox* (many, if not all, of the stages of plumage, of which are precisely similar to stages of the South African Buzzard), while the Southern Indian supposed *desertorum*, must, I believe, be assigned to *plumipes*.

It may be noticed that *primâ facie* this is what might have been expected. The Malabar Coast and the hills of Southern India, in consequence, as I am inclined to believe, of their heavy rainfall, comprise a fauna closely allied to that of the Terai, Sikhim, and what we may call the Indo-Burmese Province. If an African species were to be looked for, it would rather be in the open Deccan, Sindh, or Rajpootana, or the dry plains of Upper India or of Upper Pegu. The last place it would be likely to occur in, would be the Neilgherries and the Assamboo Hills, and that the Buzzard under consideration is *not uncommon*, in these latter is a strong *à priori* argument *against* its being *desertorum* and *in favor* of its being *plumipes*.

The importance of this consideration is enhanced by the fact, that while characteristic and accurately sexed specimens of *plumipes* and *desertorum* can doubtless be separated, at a glance, it becomes I believe, almost impossible to discriminate some unsexed and non-characteristic specimens. They may be either female *desertorum*, with rather abnormally fully-plumed tarsi, or male *plumipes*, with little-plumed tarsi.

And here it is to be noticed that the pluming of the tarsus is a very unstable character; in each species the extent of the bare portion of the tarsus varies very materially, and this not only if the apparent bare portion of the tarsus be considered (in consequence of the feathers being longer or shorter according to season and perhaps climate), but also in the actual distance to which the tarsus is feathered, counting this only to the root (and not the tip) of the lowest feather. Measured in this latter way, which is perhaps the safest, I find that in a series of 120 *ferox*, with wings varying from 16·25 in the smallest male to 19·25, in the largest female, the unfeathered portion of the front of the tarsus, varied from 2·4 to 1·5; and that not by any means according to size of bird, one male for instance, with a 16·8 wing, having 2·1 unfeathered, while a female, with a wing 19 has only 2·0 unfeathered. Nay, more than this, one typical *ferox*, a female, wing, 18·5; with the *front* of the tarsus unfeathered for 2·1; has a stripe of feathers running down the inside of each tarsus, to within 0·5 of its base.

Now this variation in the extent to which the tarsus is feathered is equally observable in *plumipes (=japonicus)*, as will be seen from the following details of the specimens in my museum. I note that in this list I have measured the bare portion of the tarsus, counting from near the tips of the tarsal plumes :—

			Length of wing.	Bare portion of tarsus.	Locality.
Variable plumage (*B. japonicus.*)	1		14·3	1·7	Travancore.
	2		14·4	1·5	Sikhim.
	3	♂	14·5	1·6	Thyet Myo.
	4	♂	14·6	1·1	Kotgurh.
	5		14·6	1·2	Darjeeling.
	6		14·8	1·4	Ditto.
	7		15	1·4	Native Sikhim.
	8	♀	15·3	1·3	Gulmerg, Cashmir.
	9		15·3	1·5	Native Sikhim.
	10		15·5	1·5	N. of Masuri.
	11		15·9	1·35	Darjeeling.
	12		15·9	1·1	Native Sikhim.
	13		15·9	1·21	N. of Masuri.
	14		15·9	1·2	Kotgurh.
	15	♀	15·9	1·	Kote Khaie.
Uniform blackish plumage (*B. Plumipes.*)	16		14·7	1·3	Native Sikhim.
	17		14·8	1·2	Ditto.
	18		15·1	1·3	Ditto.
	19		15·5	1·5	Ditto.
	20		15·5	1·1	Ditto.
	21		15·6	1·6	Darjeeling.

Now it will be observed that the wings vary from 14·3 to 15·9; and the bare portion of the tarsus from 1 to 1·7; but it has to be noted, that the only two birds in which it exceeds 1·5, are from Travancore and Thyet Myo, and in these the real difference mainly consists in the feathers *being* shorter and more worn, possibly to a certain extent the result of the warmer climate in which they were residing when killed.

All these 21 birds are absolutely inseparable. Bill, legs, feet, plumage, dimensions have all been most carefully scrutinized. I have spent a whole day over them, and have not the slightest hesitation in asserting *my* conviction, that they all belong to one* species.

In refusing to admit *B. desertorum* to a place in our avi fauna, I have not overlooked, that Mr. Sharpe in his catalogue (I,

* Since this was written, Mr. W. F. Blanford has been staying with me, and I submitted to him the whole of my Buzzards. He examined these 21 birds most carefully and laboriously, and he says that, like myself, he is unable to discover any single point by which they can be divided, or by which any one can be separated specifically from the rest.

p. 180), records three Indian examples of this species, from Nipal, Etawah, and Madras.

Possibly Mr. Sharpe not having a sufficient series before him, may have relied too implicitly on the extent of the feathering of the tarsus, which, as I have shown, is a worthless character, as regards individual specimens, although it may be good specifically. It may be quite true that *desertorum*, as a species, has the tarsus less feathered than *plumipes*, but it is impossible to take a particular specimen, and because it has 1·5, 1·6, or 1·7 of its tarsus bare, thereupon to pronounce that it is necessarily not *plumipes*, because we have essentially typical *plumipes*, with 1·5 and 1·6 of the tarsus bare.

Or again he may have relied, similarly in the absence of a good series, on the more rufous character of the plumage and specially of the thighs, which is said to be a diagnosis of *desertorum*. But plumage in the case of these Buzzards is, I am convinced, a delusion and a snare; not only *ferox* (*and ? desortorum*), but equally *plumipes* and *Archibuteo strophiatus* exhibit similar variations of plumage from the pale, through the rufous and brown to the blackish brown, and though one type of plumage is more common in one species and another in another, specimens of each *may*, I believe, be met with in each. So in *plumipes* we have a specimen from Native Sikhim, a typical specimen wing, 15·9, and barely 1·1 of the front of the tarsus bare (the feathers running a good deal further down on the interior of the tarsus), which is as red as any Buzzard can be.

It is, however, possible that while the South African *desertorum* with a wing never, as far as I can make out, exceeding 15·3 inches, may, the sexes being known, be clearly separable at all times from even rufous and slightly tarsi-plumed *plumipes*; gradations between the two may occur in intermediate countries, a consideration of which would as completely justify Mr. Sharpe in uniting his Indian specimens with *desertorum*, as a careful examination of my series (unfortunately but few of them reliably sexed) justifies me in assigning all mine to *plumipes*.

Turning now to *ferox* and being desirous of contributing my quota to the discussion which has been going on as to the changes of plumage of *ferox*, I propose to give a list of 94 specimens in my museum which I have recently examined, and arranged according to types of plumage in the order in which, from a consideration of my large series, these appear, if sequent and not alternative, to follow each other, together with the dimensions of the wing in each specimen.

There appear to me to be five fairly well-marked types, with of course numbers of intermediate forms, showing how

the different types, in some cases at any rate, grade into each other and thus enabling me, according to my idea, to make pretty certain as to the order in which these types occur.

I do not pretend to assert that *every* bird passes through *all* these stages, some of them may be alternative, some birds may never attain the final stages, possibly the females never pass into the black stage; but what I do contend is, that where these stages are attained they are attained somewhat in the order indicated below. That the white and rufous stage is the younger (though some birds breed in this,) and the darker stages older, and that the so-called melanism, or 5th stage, is not an indication of youth, but a final result into which birds pass *after* going through, and not *before*, any of the other stages.

To those who contend that the white and brown or rufous stage is the adult and the darker stages the young, I would draw attention to the fact that out of 94 specimens, no less than 44 belong to their supposed adult, and as a matter of fact, it is, taking the country as a whole, twice as numerous as all the other forms put together, though owing to the fact that the less common varieties attract the collector's eye, the number in this series is only as 44 to 50. Now every collector knows that in these Raptors one always sees many more immature than perfect adults, and it is therefore contrary to all experience to believe that the most common form is that of the adult, and the rarer ones those of the young. The following is the list:—

1st Stage, Lower plumage white, dirty white or buff more or less marked with brown or rufous.

Males (1) Raipoor 16·5. (2) Rohtuk 16·25. (3) Sambhur 16·75. (4) Sambhur 16·4.
(5) Sirsa 16·5. (6) Kotghur 17. (7) Mukrana, Jodhpoor 17. (8) Etawah 17.
(9) Sambhur 17. (10) Kot Khaie 17. (11) Sambhur 17·25. (12) Sirsa 17·4.
(13) Kot Khaie, Simla Hills 17·5. (14) Bhim Tal 17·5. (15) Sirsa 17·5. (16) Sambhur 17·6.
(18) Etawah 17·6. (19) Kotghur 17·75.
(21) Bussahir 16·5. (22) Kotghur 17·5. (23) Sassapur-Khunaitie 16·75.

Females (55) Delhi 18. (56) Sirsa 18·5. (57) Cashmere 18·5. (58) Delhi 18·2.
(59) Lahore 18·2. (60) Etawah 18·75. (61) Sambhur 18·5. (62) Sirsa 18·25. (63) Abbotabad 18·75. (64) Sumbulpoor 18·4. (65) Abbotabad 18·75.

(66) Sirsa 18·2. (67) Sirsa 18·75. (68) Kot Khaie 18. (69) Sambhur 19·1.
(70) Sirsa 18·2. (71) Hissar 18·25. (72) Delhi 18. (73) Goorgaon 18·6. (74) Rahun 18.
(75) Delhi 18·6. (76) Kotghur 18·25.

2nd Stage, General plumage brown, but with a good deal of white and rufous, on the breast and abdomen.

Males (24) Kot Khaie 16·25. (25) Kotghur 16·5. (27) Khunaihi, Bussahir.
(28) Kotghur 17·2. (19) Sukkur 16·75.

Females (77) Kotghur 18. (78) Delhi 18·5. (94) near Larkhana, Sindh, 18·25.

3rd Stage, General plumage brown with breast, and more or less of nape rufous.

Males (28) Bussahir 17. (29) Kotghur 16·5. (30) Kotghur 16. (31) Simla 16·5.
(32) Bussahir 17·25. (33) Kotghur 16·25. (34) Bussahir 16·75.
(35) Cashmere 16·8. (45) Dhurmsala 17·8?

Females (79) Goorgaon 19·25. (80) Etawah 18·25. (81) Sirsa 18. (91) Nurie Nai, Sehwan 18·25. (93) Sukkur 18·4.

4th Stage, Uniform Brown.

Males (36) Kot Khaie 17·75. (37) Kotghur 17. (38) Mussoorie 17·5. (39) Kotghur 16·5.
(40) Kot Khaie 17. (41) Kotghur 17·9. (42) Kotghur 17. (43) Kotghur 17·25.
(44) Sambhur 17·75. (46) Mussoorie 17·5. (47) Delhi 17·5. (48) Rohtuk 17·5.

Females (82) Simla 19. (83) Kotghur 18. (84) Murdan 18. (85) Goorgaon 18.
(86) Gawlior 19·2. (87) Delhi 18·2. (88) Rohtuk 18. (89) Kotghur 19. (90) Kotghur 18.

5th Stage, Uniform very dark brown, tail more or less conspicuously barred with white.

Males (49) Murdan 17·5. (50) Kotghur 17·5. (51) Hissar 17. (52) Kot Khaie 17·5.
(53) Kot Khaie 16·75. (54) Kotghur 16·5. (92) Cumba, N. Sindh 17·1.

It will be seen that the wing varies in the male from 16·25 to 17·75; and in the females from 18·0 to 19·25; long and short wings are to be met with in pretty well every stage of plumage. I have examined these birds not only with reference to the length of wing, but also with reference to the shape, and relative proportions of the primaries, the size and shape of bills and nostrils, the size of feet and claws, and lastly the length, extent

of feathering, and scutelation of the tarsi, and though individual specimens will be found to differ greatly in all these particulars, such differences exist equally in examples in all stages of plumage, and I really think that I may safely assert that all belong to one and the same species.

The variations of plumage are doubtless extraordinary, but between specimens which above are a dull grey brown, the feathers slightly margined with rufous, and below almost unspotted white, tinged only on the sides and flanks with rufous, and with an unbarred pale, salmon-coloured tail, to the deep chocolate almost blackish-brown bird, with a tail conspicuously barred with white, every intermediate shade of plumage exists, and with the whole series laid out before one it is absolutely impossible to draw a line any where.

I have a good many (26) more specimens, besides those above enumerated, which not being sexed, I have not thought it necessary to record, but not one (belonging to this type, and of course excluding *plumipes*) from the Himalayas or any part of India in which the wing is less than 16·25.

It has in the first place to be noticed that the above classification has no pretensions to mathematical accuracy. Nature draws no hard and fast line, and, except the last sub-division, each of the classes includes several specimens which might with almost equal reason be included, either in the preceding or in the subsequent class, as the case may be.

I have done my best to place each specimen in the sub-division to which, on the whole, it seems most properly to belong; but there are still a few birds so thoroughly intermediate that any one else might arrange them differently.

As regards the fifth sub-division all seven specimens are typical, and, as will be observed, are without exception males. It is just possible that the females never assume this dark plumage, but this seems unlikely, seeing that fully half of my specimens of *plumipes* in the corresponding stage of plumage are presumably females, and Mr. Blanford records having shot, and himself sexed, a female in this stage of plumage with the wing, 15·9.—(J. A. S. B. 1872, p. 41).

As regards the remaining stages of plumage, it is curious that out of 44 in the 1st stage 22 are females, out of 8 in the 2nd stage, only 3 are females, of 14 in the 3rd stage, 5 are females, and of 21 in the 4th stage only 9 are females, while as already noticed in the last stage, none are females.

I cannot at all explain what this indicates, the more so that where 2 or more birds are together, collectors naturally shoot the biggest and finest specimens.

Before taking leave of *ferox*, I may note that although it is quite impossible to separate them specifically, birds from the Himalayas do seem to average somewhat smaller, to be more constantly rufous, and to have the tarsi feathered further down, than birds killed in the plains. There are no doubt several exceptions to this rule, but it is nevertheless a fact that the great bulk of the birds in which the tarsi were feathered for less than 1·9 inches (measuring to the roots and not the tips of the lowest tarsal plumes) were obtained in the Central Himalayas, while in the great majority of specimens killed in the plains of India the bare portion of the tarsus, measured as above, did not fall short of 2 inches. This difference, however, is neither absolutely constant, nor is it accompanied by any such constant difference of plumage, or in dimensions as could justify the separation of these hill birds.

I am inclined to believe that these more fully tarsi-feathered Buzzards which were mostly procured in the hills, north of Simla, in Kooloo and Bussahir (and a great many of them during the winter) represent a permanent resident race belonging to these hills, in which they breed, and from which they do not, as a rule, migrate during the cold season to the plains.

On the other hand, I believe that the mass of the birds which throng the desert plains of Northern and North-western India breed in the Suliman range in Cabul and Beloochistan whence they migrate to India during the winter, and this difference of habitat and of conditions of life is the only rational explanation I can offer of the general, though not absolutely constant, difference between the birds killed in the Central Himalayas and the plains of India.

In my notes on the ornithology of the first Yarkand expedition, I expressed an opinion adverse to the validity of Hodgson's species, *Buteo aquilinus*. I had then a single specimen of the species which was compared for me with the type by Mr. Gurney and Mr. G R Gray, and pronounced by them to be identical with it. I have still only this one specimen, but yet after a very careful examination of it and a comparison with 120 specimens of *ferox*, I am inclined to retract my former opinion and admit *aquilinus* as a good species.

The points of distinction on which Mr. Blyth chiefly insisted were the extent to which the tarsus was feathered, and the reticulate character of the scutation of the foot and front and sides of the tarsus.

As regards the former, I have already shown that this is not a character by which the bird can be separated from many specimens of *ferox;* but as regards the latter I am bound to say that I think I was too hasty in my former conclusion, and

although in several specimens of *ferox* the scutation makes a decided approach to that of my specimen of *aquilinus*, in no single specimen out of 120 does it appear to be so thoroughly and entirely reticulate as in the present species.

But besides this difference, there is a marked structural difference. The wing in this specimen, a female, is only 18·6, and we have several females of *ferox* in which the wing exceeds 19, yet in none of these are the feet anything like so powerful, or the claws as large as in my specimen of *aquilinus*.

In a fine female *ferox* with the wing the same size (18·6) the inner toe-claw measures, from root to point along the curve, exactly one inch, the same claw in *aquilinus* similarly measured is over 1·85. The other claws are also, but not quite proportionally, larger, in fact, the extra size of the inner toe-claw appears to be one characteristic of *aquilinus*.

Besides this I do think that the bill is somewhat more powerful than in *any* specimen I have of *ferox*; and it also seems to me, though I admit that this is not a good character, that the second quill is longer than it is in *ferox*, being not quite an inch shorter than the 3rd.

On the whole, comparing this with perhaps the largest series of *ferox* ever collected together in one place, I cannot avoid the conviction that it is distinct. I have only to add that as regards my specimen, the plumage is similar to that of many specimens of *ferox* in what I call the first stage, and that I have little doubt that rufous, brown, and dark specimens of it occur.

When we turn from *ferox* to *plumipes*, we find in this latter a precisely parallel series of types plumage, although the *upper* surface is apparently never so rufous as it is in some specimens in the first stage of the former.

With the other stages I need not now concern myself but in regard to the dark, and as I conceive latest stage, I wish to make a few suggestions.

Mr. Gurney, *Ibis*, 1876, p. 369, remarks, *à propos* of the black stage:—"To me it seems much more likely to be an accidental melanism, both from its great rarity and from the fact of its never having been observed either in China or Japan, but only in countries adjacent to the Himalayas—a circumstance which possibly may afford a parallel to the occurrence in a similarly restricted, but more westerly, district of the melanistic phase of *B. ferox*."

Now as regards its rarity, it will have been seen that out of my 21 specimens, 6 are in the typical *plumipes* plumage, and 2 of the others, I may add, approach it very closely.

It appears to me that this is the largest proportion of old adults that one could possibly expect to meet with, even in the

very home and stronghold of the species. A melanism that affects 33 per cent. of the community, surely deserves the appellation of a stage of plumage.

That this dark form has not yet been observed in China and Japan, and on the other hand is common in the Himalayas is entirely in favour of its being the plumage of age and not a mere melanism. Habitually the younger birds extend their migrations further than the older ones; if the black birds are old adults, they would, of course, be *very* rare in China and Japan, where the species is only, I believe, a winter migrant, from a distant locality, while (as is a fact) they might be expected to be common in the Eastern Himalayas which are a portion at any rate of the head-quarters of the species. But if the dark stage is a mere accidental melanism, independant of age, then the observed facts are much less easily explicable, indeed become inexplicable. If my contention that the dark stage is dependant on age be rejected, then it seems to me that the only tenable alternative hypothesis is that the dark stage represents a local species or sub-species, bearing the same relation to *japonicus* that *Cyanocincla solitarius* does to *C. cyana*. Under no circumstances does it seem to me that the accidental melanism theory sufficiently accounts for the known facts.

As Mr. Gurney truly observes, the precisely parallel case of *B. ferox* ought to throw some light on the subject. Throughout the plains of the North-Western Provinces the dark birds are almost, if not wholly, unknown. Further west and north in the Punjaub and Rajpootana, these begin to appear, but still throughout the greater portion of these tracts they are rare, and the great bulk of the specimens are still, as they almost universally are, in the North-Western Provinces in what I call the first stage of plumage. It is only in the extreme north and west, in the Punjab, about Peshawur and Murdan, and trans-Indus and again in Sindh trans-Indus that the dark form is at all common; and in some few places in the latter locality they seem to be more numerous than the white and rufous birds. This is in the immediate neighbourhood of the breeding places of, as I believe, the majority of the birds that visit the plains of India.

But it will doubtless be said that the birds breed also about Sarepta in Palestine and elsewhere, and that no considerable number of black birds are ever there obtained. If this is correct, then all that can be said is that the Eastern race that breeds in Afghanistan and Beloochistan (and possibly Persia also) differs in assuming, when old or quite adult, a stage of plumage only accidental in the western race; and such difference is quite in harmony with what I have already noticed in regard

to the Central Himalayan race (and I suspect Mongolian birds from what Radde says are akin) with a greater tendency to deep rufous colouration and a more fully-feathered tarsus.

From all I have seen of this sub-group of Buzzards, I am inclined to suspect that they are specifically of recent origin, and that the several species have not yet become fully differentiated.

As a rule, it seems to me that when dealing with continental species (the conditions of insular life are different), it is only those that *are* past their prime, which we may expect to find clearly and sharply defined from their congeners, and without intermediate connecting links. While the group of species is young and still developing, the boundaries are still hazy and intermingled; it is only when decadence has commenced, and the interconnecting links have dropped out, that the several surviving species are found to be distinctly isolated. It seems to me probable that all those groups, in which the species are found, to grade imperceptibly into each other (a gradation, often, and, as I think, unphilosophically explained as cases of hybridism), are of comparatively recent origin, and that the more throughly isolated a set of species are the older they may *primâ facie* be assumed to be. Of course, there are external circumstances which will modify this general law as to the normal progress of species of life, but the law itself appears to me to be one of primary importance that has scarcely as yet attracted attention.

To return to our Buzzards, and their supposed accidental melanoid varieties; there is yet a fourth species to be noticed, and that is *Archibuteo hemiptilopus*, Blyth.

Now it is very remarkable that this also has a black form, as dark as the darkest *plumipes*, or 5th stage *ferox*.

I have very fully described one specimen of this species (a presumed female) (S. F. Vol. I, p. 315) which is in the stage corresponding to my first stage of *ferox*. I also described (*loc. cit*) from Mr. Hodgson's drawing another specimen, a male, almost precisely in what I have called the 3rd stage of *ferox*.

Mr. Sharpe has figured and described (Cat. I. p. 199, Pl. VII. 2) a specimen, supposed to be Hodgson's type almost exactly in what I call the 4th or uniform brown stage, and I have now before me two others, one a female (presumably) in plumage intermediate between the 2nd and 3rd stages, and one a male (presumably) in the 5th or *melanoid* stage. Both these are from Thibet.

The first measures:—Length, about 27; wing, 20; tail, 12; tarsus, 3·4; bill from gape, 2·0; mid toe and claw, 2·25; hind toe and claw, 1·9; bill, along culmen, from edge of cere to point, 1·3; hind toe claw along curve, 1·2; mid do. do. 0·75; inner do. do. 1·1.

Structurally and in dimensions this specimen agrees precisely with the specimen I formerly described, only (as might be expected in an older bird) the feet and claws are a trifle more massive and powerful.

The general plumage is a very uniform, moderately pale, hair brown, verging somewhat to umber, but the breast and middle of the abdomen are much variegated with ferruginous brown feathers broadly tipped and, in some cases, margined, with rufescent buff.

The lower tail coverts are fulvous white, broadly margined with rufous and rufous buff, and with traces of imperfect brown bars on these margins. On the nape and interscapulary region is an immense patch of feathers, white on their basal halves, and buff in some, deep ferruginous in others, on their terminal halves, all brown shafted, and some with narrow brown shaft stripes. The wing lining is mingled deep ferruginous and brown. Large portions of the huge white wing patch described in the former specimen are in this present bird mottled over with a brownish grey, and this is the colour of those portions of the outer webs of the earlier primaries which were white in the former specimen. The tail is like that of many *ferox*, a grey brown, tinged with rufous towards the tips, everywhere browner towards the margins, with 3 or 4 transverse irregular bars towards the tips, and zig-zaggy traces of 4 or 5 others higher up.

The presumed male is a somewhat smaller bird.

Length, about 24; wing, 19; tail, 11·0; tarsus, 3·4; bill from gape, 2·0; mid-toe and claw, 2·0; hind toe and claw, 1·62; bill along culmen from edge of cere to point, 1·C3; hind-toe claw along curve, 1·2; inner do. do. 1·13; mid do. do. 0·7.

Although the bill measured from the *gape* in this skin is as long as in the former specimen, it is really considerably smaller and feebler, and though the claws are nearly as long, they as well as the toes are feebler and slenderer.

The large size of the inner toe claw far exceeding that of the mid, and all but equalling that of the hind toe is a marked peculiarity of this species, shared though in a minor degree by *aquilinus*. Another noteworthy point is the very considerable dilation of the inner edge of the mid toe claw.

The whole bird is a very *deep* umber brown, almost blackish, deepest on quills, tail, abdomen, lower-tail coverts, and tibial and tarsal plumes. The latter quite conceal the foot in this specimen, are somewhat shorter in the female above described, and shorter still in that first described (S. F. p. 1, *loc cit*).

Some of the longer upper tail coverts exhibit a few oval white spots. The basal halves of the central tail feathers exhibit

four irregular clouded transverse grey bars; in the lateral feathers, these are more numerous, extend nearer and nearer to the tips, and are whiter and larger (almost confluent in some places) on the inner webs. The white wing patch is entirely replaced by a pale somewhat brownish grey, except in a small patch along the shaft quite at the base of the primaries. Except that the claws are much more curved, and the inner toe much shorter and feebler and the tail shorter, this specimen might well pass for a rather brown, diminutive *Neopus*, and indeed it was as a probably new species of this genus that Mr. Mandelli sent me this specimen.

Looking to the systematic manner in which this black stage is reproduced in each of these three species, I think that the idea of accidental *melanism* may be set aside, and this form accepted as a normal state of plumage, at any rate in *hemiptilopus* and *(Indian) ferox*, and *plumipes*.

All my three specimens of *hemiptilopus* exhibit that peculiar plumose character of the base of the bill almost concealing the nares, on which Hodgson's name *cryptogenys* was founded. I have no doubt whatsoever myself that this latter, as well as *strophiatus*, Hodgson, must be considered as synonyms of Blyth's name.

Of course, the whitish breast band on which Hodgson's second name was founded is merely one stage of plumage, which may occasionally be observed in *ferox* just as it is passing into the uniform brown stage.

Before quitting the Buzzards, I must notice Mr. Gurney's view (*Ibis*, 1876, p. 367) that in *ferox* "transverse bars upon the tail are ordinarily and normally indications of immaturity." I may be wrong, I naturally traverse in this and other cases, the opinions of so eminent an authority with the greatest diffidence, but still I think, I ought to record distinctly that my large series of this species does not permit of my concurring in this opinion. Strongly barred, feebly barred, partially barred, tails, as well as unbarred ones, and others with only traces of a bar or two seem to be met with in the most various stages of plumage. If you arrange the birds by the degree to which their tails are barred, you get specimens of the most discordant types of plumage side by side. Nothing can be more irregular than the changes of plumage; they are never synchronous on the upper and lower surfaces. Arrange by the former, and you have all types of the lower grouped together and *vice versâ*.

What Mr. Gurney says may possibly be true of the Palestine and Sarepta breeding birds, but I hardly think it can be accepted as equally applicable to the Indian race.

51.—Circus Swainsoni, *Smith.*

"Not uncommon from November to January inclusive, on high and exposed bare grass land.—F. W. B."

A fine young female of this species killed Colathoorpolay Valley, Travancore, at an elevation of about 3,000 feet; on the 28th December measured in the flesh:—

Wing, 14·62; tail, 9·26; tarsus, 2·9; bill from gape, 1·18. The cere was greenish yellow; bill and claws, black; tarsi and feet, orange yellow; irides, bright yellow.

55.—Haliastur indus, *Bodd.*

No specimen received.

"The Brahmany Kite is an occasional visitor to the hills during the hot weather. Its usual habitat is the sea coast and the palmyra plantations; a few miles inland.—F. W. B."

56.—Milvus govinda, *Sykes.*

No specimen sent. I cannot therefore tell whether the specific name has been correctly assigned.

"The Pariah Kite is a hot weather visitor on the hills; numbers may be seen hovering over the smoke of the grass fires at the foot of the hills, and wherever a piece of felled jungle is fired, the blaze and smoke is sure to attract these birds, who immediately collect and dive repeatedly into the thickest of the smoke, to supper on the remains of some scorched snake or lizard. I do not think that they pass the nights up the hills, for they are not usually visible before eight o'clock in the morning, or after four in the afternoon.—F. W. B."

68.—Otus brachyotus, *Gm.*

"A single specimen seen and shot while hawking at midday in bright sunshine, at 4,000 feet elevation, in the end of December.—F. W. B."

This specimen, a female killed at the same time and place as the pale-chested Harrier last mentioned, measured in the flesh:—Length, 15; expanse, 38; wing, 12·37; tail, 6·5; tarsus, 1·87; bill from gape, 1·05.

The bill and claws, black; the irides, yellow.

78.—Glaucidium malabaricum, *Blyth.*

"A resident, preferring the lower jungles, though I have occasionally heard one as high as 2,500 feet in heavy jungle. The cry is not to be mistaken, it is extraordinarily loud for the size of the bird. It has a great variety of notes, which

it utters both by night and by day. It appears to feed principally during the hour after sunrise and before sunset.—F. W. B."

I follow Mr. Sharpe's catalogue in classing this bird as a *Glaucidium*, but I am not prepared to say that in all cases the particular small structural differences on which he founds his divisions of genera amongst the owls are those which lead to grouping the various species in the most natural manner. Like Linnœus' botanical classification, it immensely facilitates the identification of any particular specimen, but it seems to me to be in some respects artificial, and I doubt not that he will hereafter modify it considerably. Of its extreme convenience to working field naturalists there can be no two opinions.

The specimens sent, all belong to the typical *malabaricum* type, with the whole head, neck, upper back, and lesser wing coverts, strongly ferruginous. As to the conspicuous difference in appearance between typical *radiatum* and typical *malabaricum* no one can doubt, but it is rather puzzling to find typical *radiatum* in the very same locality as typical *malabaricum*, and to meet with, both in Southern and Northern India, specimens that might be assigned to either species. I have never yet seen a thoroughly typical *malabaricum* from Northern India, but at Anjango on the Travancore coast between Quilon and Trevandrum where considerable collections were made for me, I obtained a typical *radiatum*, several typical *malabaricum*, and a good many more or less intermediate forms. I consider *malabaricum* quite as good a species as a vast number that are now-a-days admitted, but my own fixed impression is that when ornithology is further advanced, a vast number of what are now admitted as species will be degraded to sub-species and indicated by trinomial appellations. I believe that it would be much better to call these present birds *Glaucidium radiatum, malabaricum*, than to designate them as is at present the custom.

Some of the specimens sent measured in the flesh:—Length, 8; expanse, 17·5 to 18; wing, 5; tail, 2·58, 2·62; tarsus, 0·9; bill from gape, 0·7. The irides were light yellow.

81.—Ninox scutellata, *Raff.*

"Replaces the preceding species above 2,000 feet elevation, and frequenting heavy jungle and the borders of clearings, where, on bright moonlight nights during the winter months, numbers may be heard calling to one another. The call is a monotonous double hoot (the first syllable prolonged, the second cut short), uttered when the bird is perched on the bough of some bare tree; and I have never heard it cry as described

by Jerdon. The bird is shy, making a sudden dive into the jungle when approached.—F. W. B."

The specimen sent is one of the small dark race which appears to be common to the extreme south of India, Ceylon, and the Straits, and it may be (though I have no specimens to compare) to Sumatra also. This race at any rate answers fairly to Raffles' description, length about 10 inches, and at present I see no objection to retaining it under Raffles' name; but if the Indian *Ninox* are to be divided at all, as Mr. Sharpe divides them into *lugubris and scutellata*, then I altogether demur to retaining under the name of *scutellata* the large dark races of (i) Pegu and Tenasserim, (ii) Cachar, Tipperah, Sylhet, &c., (iii) Nipal and the Eastern Himalayas.

The present specimen is absolutely identical with one of our specimens shot at Pulo Seban, 22 miles E. by N. of Malacca. It is extremely dark, the head darker than the body, but not at all grey, and it has the interspaces of the tail extremely light-coloured, and the tail conspicuously tipped with white. Another specimen shot in the native state of Tampin near Malacca is very similar, only the head a shade less dark. A third specimen shot at Ruroo (near Tampin) is very similar, but has the interspaces of the tail very dark and scarcely any white tipping to it. These are all males, our present being a male also.

It measured in the flesh:—Length, 10·6; expanse, 23·75; wing, 7·87; tail, 4 62; tarsus, 0·87.

The corresponding Malaccan specimen measured in the flesh:—Length, 10·1; expanse, 25; wing, 7·6; tail, 4·75; tarsus, 0·9; so that it is really impossible to separate the two.

I have elsewhere descussed our Indian species of *Ninox* and need, therefore, say no more about them at present.

83.—Hirundo javanica, *Sparrm.*

"A resident travelling but little, two or three persistently frequenting each sheltered ravine in an open clearing. They seem to spend more of their time on a perch than most Swallows.—F. W. B."

A specimen, a male shot at Mynall, in January, measured:—Length, 4·8; expanse, 10·5; wing, 4·1; tail, 1·94; tarsus, 0·35; bill from gape, 0·5.

103.—Collocalia unicolor, *Jerd.*

"Residents on the hills and very abundant. I only know of one breeding cave, which was discovered by a gentleman when following up the track of a bear. This cave is situated at the base of a grass ridge at an elevation of about 2,300 feet

It is formed by a large mass of rock having slipped and left a crevice between it and the main body, some 80 or 90 feet long, 20 feet high, and an average breadth of 3 feet, being no where more than 6 feet wide. The floor of the cave was thickly strewed with the guano deposited by the birds; this guano consisted for the most part of the undigested and hard portions of beetles, and presented little of the pungent odour which characterises the guano of commerce. On visiting this cave in March, with the gentlemen mentioned in the preface, we found the birds had begun breeding. On the overhanging sides of the cave, at heights varying from 6 to 16 feet from the ground, were some two or three hundred nests. Of these perhaps one-third were empty being either unfinished or abandoned, while the greater number of the nests contained two pointed-oval white eggs: some of the nests contained a single egg, and some a newly hatched nestling.

"The nests themselves, though fastened and lined with a good deal of gelatine, contained a larger proportion of moss and feathers and did not look at all tempting as an article of diet. They varied considerably in shape, the more perfect being a fairly correct circular shallow cup, with one side flattened for adhesion to the wall of rock. Others which held eggs were mere brackets, slightly indented to retain the contents. The egg, judging from 14 specimens collected on this occasion, varies from ·81 to ·91 of an inch in length, and from ·52 to ·58 in breadth: the average being ·85 long and ·55 broad.—F. W. B."

The specimens sent belong to the same species as occurs in the Neilgherries, and after comparing a large series from the Neilgherries with an equally large series from numerous localities in the Himalayas, I have no hesitation in uniting the two, although unquestionably Himalayan birds average lighter coloured.

On the other hand, I must distinctly protest against uniting with this continental Indian species the white, or in less mature examples, whitey brown rumped species of which we procured numerous specimens at the Andamans, and which is exceedingly common on the Tenasserim Coast, and which I have hitherto designated as *spodiopygia*, Peale. I have nearly a hundred of the two species put together before me, and with all deference to eminent ornithologists at home, I must maintain that the two species are as distinct as *Oriolus kundoo*, and *Oriolus chinensis*. It is noteworthy that *unicolor* never makes an edible nest any more than *linchi*, whereas *spodiopyga* always does.

Of two Travancore males measured in the flesh, the following are the dimensions:—

Length, 4·75, 4·9; expanse, 10·3, 10·4; wing, 4·8, 4·75; tail, 2·22, 2·25; tarsus, 0·35; bill from gape, 0·45; breadth at gape, 0·5. Irides, dark brown.

105.—Batrachostomus moniliger, *Layard.*

"Of this very peculiar bird, which I believe is not rare, I have at present been able to secure but three specimens, *viz.*, a male and female, and a nearly-fledged nestling. The adult birds were killed in thick brushwood under a dense growth of heavy timber, while the young bird was brought to me with the nest taken in rather open jungle at an elevation of about 2,100 feet.

I believe the bird to be not uncommon, because I attribute to it a loud chuckling cry, with somewhat the tone of a Goat-sucker and not unlike the laugh of some King-fishers, a difficult call to describe, which may generally be heard in heavy jungle at 2,000 feet elevation, any night during the last and first two months of the year. If I am not mistaken, the habits of this bird are very shy and retiring, for it never appears to venture into the open, and only commences calling in the breeding season some considerable time after dark, and living entirely in dense jungle, it is a very difficult bird to secure. Of the nest and nestling, a short account will be found in Mr. Hume's "Nests and Eggs" of Indian Birds.—F. W. B."

Before alluding to the particular specimens sent, I wish at once to point out an error into which the editor of the ornithological part of Blyth's birds of Burma has fallen.

He asserts as a matter of fact that *Batrachostomus castaneus*, Hume, from Darjeeling, *vide* Vol. II. p. 349, is identical with *B. affinis*, Blyth; this however it certainly is not.

This is not a moot point in regard to which opinions might differ, but a simple matter of fact, in regard to which I am sure that the learned editor will agree with me, if he will only take the trouble actually to compare Malaccan and Sikhim specimens. The plumage is no doubt very similar, though the breast in the Sikhim birds is always much brighter than in examples from the Straits, but the great characteristic difference that exists is in the size of the bill. The bill in the Malaccan species is enormously larger than in the Sikhim one. Figured dimensions do not always convey an adequate idea in such matters, but in this case the difference is very considerable.

Thus the width of the gape in the Malaccan species varies from 1·4 to 1·5, in the Sikhim species from 1·05 to 1·1. Again

the length of the bill in *affinis*, measured from gape to point, varies from 1·3 to 1·4; in *B. castaneus*, from 1·06 to 1·12.

Any one who will compare the bills of several specimens from each locality, will, I am certain, admit the distinctness of the two. There are also conspicuous differences in plumage. The whole under-surface in *castaneus* being a much richer and deeper color than in *affinis*, and the white spots of the gorget being in *castaneus* much larger, much purer white, and much more conspicuously bounded below by black; moreover, there are similar white spots on the throat of *castaneus* which are not apparently represented in *affinis*.

In the second place the same editor, above referred to, also asserts that *B. punctatus*, Hume = *B. moniliger* of Layard. This again I must beg to contradict.

Mr. Bourdillon has sent me a very fine pair, the female of which corresponds closely with Mr Blyth's description (J.A. S. B. XVIII., p. 806, and "Stray Feathers," Vol. II., p. 350). And I find that both ♂ and ♀ (the male, however differing greatly in plumage from the female) are clearly distinct from and *very much* larger birds than my *punctatus*.

I pointed out at the time that *punctatus* was much smaller than *moniliger* as described by Blyth, and now I find that Blyth's dimensions agree exactly, except in the matter of the length of the bird (and he took this from the dry skin) with Mr. Bourdillon's measurements recorded in the flesh. I suppose that *punctatus*, though clearly an adult, can scarcely have weighed half as much as *moniliger*. Like *castaneus*, *punctatus* therefore is unmistakably distinct* from the species with which it was so unhesitatingly pronounced to be identical. I do not think that the learned editor in question should have so positively asserted what he had no means of verifying.

These are not the only two errors of this kind into which this same learned editor has fallen in this one catalogue. Mr. Oates has pointed out another of precisely the same character, and I have more yet to notice elsewhere. It does seem a pity that such very erroneous assertions should be put forward so authoritatively without the remotest apparent grounds.

It does not, however, at all necessarily follow that because *castaneus* is distinct from *affinis* that it is therefore a good species. As I said in an article on certain species of this genus, Vol. II., p. 353, I am by no means convinced that *castaneus* is not one sex, and *Otothrix Hodgsoni* the other sex of the same species in which case the bird would stand as *Hodgsoni*.

* Since this was written, Mr. W. F. Blanford has been staying with me. I have submitted to him my whole (very limited) series of Batrachostomi, and he agrees generally with me in all my conclusions. He has promised me to write separately on the subject to the *Ibis*.—Ed., S. F.

It is true, that when I formerly wrote, I thought it (relying upon what Hodgson recorded) probable that *Hodgsoni* was the female and *castaneus* the male, but now the remarkable fact appears that while the female *moniliger* as sexed by Mr. Bourdillon closely agrees with Mr. Blyth's description of that species, the male as also sexed by Mr. Bourdillon approximates in plumage to *Otothrix Hodgsoni*, and bears it appears to me precisely the same relation in point of plumage to *its* female that *Otothrix Hodgsoni* does to *B. castaneus*.

As regards the identity of *Otothrix Hodgsoni* and *Batrachostomus castaneus*, it has further to be remarked that despite what has been said to the contrary (unless I wrongly identify the former), the upper mandible in both closes completely over the lower mandible; moreover the bills of both are precisely similar, and in both very much smaller than either those of *affinis* or *moniliger*, and lastly in both there is, in good specimens, a peculiar development *over* the eye of long bristle-like feathers which I do not find in either of the other species.

Of course, we must defer any positive conclusion until some one will shoot and carefully dissect a few of the Sikhim birds, but at present it appears to me that the balance of evidence is entirely in favor of *B. castaneus* and *O. Hodgsoni*, representing different sexes of the same species. Further it would not surprise me to find that the red and grey birds of the other species of this genus represent the two sexes, instead of being mere stages of plumage common to both sexes.

To return now to *Batrachostomus moniliger* of the female, the following are the dimensions recorded in the flesh:—

Length, 9; expanse, 16; wing, 4·75; tail, 4; tarsus, 0·6; bill from gape to tip, 1·35; width at gape, 1·37.

The original description given by Mr. Blyth, already quoted in this Journal (Vol. II. p. 350), corresponds on the whole so accurately with this bird (the ♀ of the pair according to Mr. Bourdillon,) that I shall not attempt any fresh description, but I would remark that in my specimen it appears to be the nuchal and not the occipital feathers that are tipped white, that the inner webs of the primaries are hair brown, and that every one of the feathers of the interscapulary region has a minute, but bright, black spot at the tip.

The male, however, is a very different looking bird, altogether greyer and less rufous, with the abdomen and the outer webs of most of the scapulars pure white and only pencilled with blackish brown, with an excessively conspicuous and broad white nuchal half collar, and a white band across the base of the throat.

This specimen, like the female, was shot at Mynall in South Travancore at an elevation of about 2,000 feet above the sea level. It measured in the flesh :—

Length, 9; expanse, 15·5; wing, 4·75; tail, 4·5; tarsus, 0·59; bill, width at gape, 1·4; from gape to tip, 1·4.

The bill was pale brownish; feet, ditto; claws, plumbeous; irides, bright yellow.

It is a remarkable fact that while the female has only two-thirds of the tarsus feathered, the male has the entire tarsus feathered.

The entire chin, throat, breast, a pale very slightly rufescent fawn brown, darker towards the sides, most of the feathers, especially along the side and towards the lower part of the breast, excessively finely almost obsoletely vermicilated towards their tips with blackish brown, and a few of those on the lower part of the breast with distinct though minute black spots at the tips; a row of feathers across the base of the throat broadly tipped with white, the white preceded by a faint narrow blackish brown line. Abdomen and sides are excessively pale fawn colour, but the feathers all broadly tipped with white, so that on the upper abdomen and sides, the fawn colour is completely hidden, the white more or less freckled, but very finely, with blackish brown, and in some of the feathers immediately adjoining the breast bounded, by an irregular black line above. A conspicuous fulvous supercilium, all the feathers on the upper edge of which are tipped black; lores, a duller and slightly more rufous tint as are the bases of the strong loreal bristles, the terminal two-thirds of which are blackish.

The whole of the forehead, crown, and occiput, and sides of the head behind the eye, pale buff, much the same color as the supercilium, but so densely freckled over with black or blackish brown as to leave but little of the ground colour visible; besides this all the feathers of the head have minute terminal buff spots preceded and almost surrounded on the upper side by tiny black specks; there is a distinct rufous tinge at the base of the occiput.

The feathers of the nape are broadly banded at the tip with white, preceded and followed by narrow black lines; the interscapulary region is precisely similar to the head, but has the rufous tinge of the base of the occiput, and the black spots want the terminal buff speck; the rump again is similar, but entirely wants both buff and black spots, but a few of the former appear again on the upper tail coverts; the inner webs of the scapulars, and the inner scapulars generally, are similar to the interscapulary region, but the outer webs and a

considerable portion of the outer scapulars are white, finely and sparsely vermicilated with brown; all the scapulars have conspicuous velvet black spots at the tips, and some of the outer ones have a white speck again beyond this.

The primaries are deep hair brown on the inner webs, dull rather pale rufous on the outer webs, with narrow, regular, widely separated, sloping bars of the same colour as the inner web, and with here and there a pale patch on the interspaces.

The secondaries are similar, but have the bars less defined, and the interspaces more freckled.

The extreme tips of both primaries and secondaries are minutely specked with dull pale rufous.

The tertiaries are very similar to the scapulars, but are suffused with a silvery grey tint.

The coverts are rufescent brown, narrowly and irregularly barred with black; many of the secondary and tertiary greater coverts are tipped with white, in some cases preceded, in some almost entirely encircled by a black line. Two or three white spots half encircled by a black line occur on the lesser coverts.

The tail is grey, tinged with slightly rufescent brown on the basal half, every where pencilled finely with blackish brown, but much more densely so in zones, so as to produce the effect of numerous transverse darker bars. The last three of these bars distinctly defined by an irregular wavy velvet black line.

This specimen, I may add, is in the most perfect state of preservation possible.

The nestling, but not of this pair, was obtained with the nest near Mynall on the 24th February. Mr. Bourdillon says:—

"The nest was composed of vegetable down neatly and compactly, interwoven with pieces of dead leaves, fragments of bark, dry wood, and one or two pieces of lichen. In shape it was a circular pad or disc about 2·5 inches broad, and 1·25 in depth, the upper surface being slightly hollowed out. The nest was placed about 16 feet from the ground in the fork of a sapling apparently without any attempt at concealment. At the foot of the tree I found the remains of an egg, these I send with the nest as I at least have no doubt that they originally enclosed the young frog mouth. You will see from these fragments that the egg was pure white, rather round, of thin texture, and with a smooth glossless surface."

Further particulars about the nidification of this species and *Otothrix Hodgsoni*, will be found in the outcoming revised edition of "Nests and Eggs."

The nestling barely fledged is a curious little rufous brown ball, with the characteristic bill of the species and with distinct

traces of black terminal bars to the feathers of the upper back and scapular region. It was so young that its sex was not ascertained by dissection. It is not four inches in length, and probably was not above eight days old.

One word more about my *B. punctatus*. Mr. Vincent Legge suggests that it was probably not shot by Mr. Nevil himself, but procured from a dealer in Kandy along with other specimens which he purchased for me, and that it is therefore possible that after all its parentage may not be Cingalese. So that though certainly not identical with *moniliger*, it may be identical with some other known species. But it is considerably smaller than any other of which I can find a description.

108.—Caprimulgus Kelaarti, *Blyth.*

"A winter visitor, occurring rather abundantly from November to March, and preferring open grass land at the edge of forest.—F. W. B."

Six specimens sent, all nearer to the *Kelaarti* than the *indica* type. No doubt, typical examples of these two supposed species appear to be very distinct, but as far as I have been able to investigate the question, every intermediate link between the two typical forms occur, and occur, moreover, almost all over the country; I am quite unable myself to detect any constant difference by which the two species may be separated.

If we accept size as the criterion, then we shall find some of the very smallest birds, not only from Mahabaleshwar and Ahmednuggur, but also from Raipoor, Sankhra, and Etawah. If on the other hand we take the silver grey, and much black-mottled plumage, and the entire absence of rufous as the criterion, we shall find *Kelaarti* not only equal in size to *indicus*, but occurring in Hazara, near Simla, and in the Doab.

In both species the male has a large, almost terminal, white spot on the four exterior laterals on either side, in fact (as there are only ten tail feathers altogether), on all but the two centre ones. A narrow irregular terminal dark band succeeds to the white spot, and Mr. Blyth at one time pointed out as a distinction between *indicus* and *Kelaarti*, that this band was much broader in the latter than in the former; but this distinction again will not hold good, as some of the largest, and some of the most rufous birds will be found, with the terminal bands as broad as any of the smallest, and darkest non-rufous specimens. Besides the white spot on the tail, the male has a white spot on the outer webs of the first three primaries, and on the inner webs of the second to the fourth; the female entirely wants the white tail spots, which are not even represented as in the *albonotatus*

group, by buffy patches, while the white wing spots are represented by imperfect rufous bars, scarcely larger than the rest of the similar bars which mark the primaries.

Of the six birds sent only two are at all typical *Kelaarti*, and even these have more rufous about them than typical *Kelaarti* should have. These measure :—

Male—Length, 9·75 ; expanse, 19 ; wing, 6·75 ; tail, 4·5.

Female—Length, 10·25 ; expanse, 21 ; wing, 7.25 ; tail, 4·75.

Two are very rufous, quite as much so as the majority of Northern Indian specimens. They measured :—

Length, 10·5, 10·25 ; expanse, 21, 20·75 ; wing, 7·37, 7·62 ; tail, 5·5, 5. The remaining two are intermediate.

I believe myself that *Kelaarti* will have to be suppressed, the most typical specimens are not more distinct than are some of the different Indian races of *Pericrocotus perigrinus*, and these latter races are at any rate confined to particular portions of the country, whereas *Kelaarti* and *indicus* occur everywhere.

114 *ter*.—Lyncornis Bourdilloni, *Hume*.

"This species, which Mr. Hume has done me the honour to name after myself, I have only once observed as described in Vol III. p. 302, and I know nothing further of its habits.—F. W. B."

This species was fully described, Vol. III, p. 302, no second specimen has as yet been secured.

115.—Haspactes fasciatus. *Gmel.*

"A common bird in heavy jungle above 1,000 feet elevation ; as described by Jerdon, it is of solitary habit, wandering about a good deal ; but it utters its call (something like the mewing of a cat) continuously, though not loud enough to attract much attention.—F. W. B."

123.—Coracias indica, *Lin.*

No specimens received.

"The Indian Roller is rather scarce even in the low country. I have seen one or two pairs in the neighbourhood of cultivation at the foot of the hills, where I have also known them to breed. They do not appear to enter the forests or the hills themselves.—F. W. B."

126.—Eurystomus orientalis, *Lin.*

"This bird, no where abundant, is, I think, only a visitor, although I have observed it in August, during the winter months, in April and as late as May. During the breeding season they are very noisy and jealous of the approach of even small birds

to the proximity of their nest; and I was once much amused in watching a pair turn out a couple of hill mynahs from a hole in a rotten stump, when the latter had commenced to lay materials for a nest. I secured three hard-set eggs of this species in March at about 1,700 feet elevation, of which a note will be found in Mr. Hume's 'Nests and Eggs.'—F. W. B."

Eurystomi from all parts of India, and Burma appears to be undistinguishable.

129.—Halcyon smyrnensis, *Lin.*

"Common among the small patches of paddy cultivation and on the banks of the larger streams at the foot of the hills, but never ascending to any height. The female lays from four to six round white eggs, about the beginning of April in a hole in a bank.—F. W. B."

135 *bis*.—Alcedo ? asiatica, *Swains.*

"Occurs, though less abundantly, in the same situations as the last species.—F. W. B."

A most lovely little King-fisher sent me by Mr. Bourdillon may for the present bear this title; but if other specimens are procured, exhibiting the same characteristic differences as the example before me, the Southern Indian birds will have to be separated as a distinct species.

The bird before me is larger than any specimen of *asiatica* or *Beavani* that I have seen, and with a considerably longer bill than any specimen recorded by Mr. Sharpe in his splendid monograph. The bill measures 2·05 at front, and the wing is just 2 8.

The colour of the upper surface is as bright as the brightest Malayan specimen. The lower surface is more intensely coloured than any specimen of *asiatica* or *Beavani* that I have seen. The whole sides of the breast are a deep violet-blue, and several rows of the feathers of the breast are narrowly tipped with the same colour.

It must be understood clearly that this is not *Beavani*, but a form lying on the other side of *asiatica*.

As to *Beavani*, a few remarks may be useful. I have now before me eleven males and five females of this species from the Andamans, and I find that the females only differ constantly from the males in having the whole lower mandible, and sometimes the whole of both mandibles, deep dull red. None of the females have the characteristic red ear coverts and cheeks of female *asiatica*. They mostly have the ear coverts almost uniform with the cheeks, but with fewer bright blue spots, but one specimen has on one side of the head a slight rufous

tinge at the base of the ear coverts. These specimens vary a great deal in the colour of the upper parts, but as Lord Walden correctly remarked, not one of these approaches the intensely deep blue of the *finer* Malayan specimens of *asiatica*.

When we take Tenasserim specimens from Amherst, we find that some of these are identical in colour with the deepest coloured Andaman birds, but one of them is nearly as deeply coloured as Malaccan specimens; here the strange thing is that the female has the cheeks and ear coverts red, but divided by a conspicuous blue band. This too is the case with a female from the Rajmahal hills, and this too was probably the case with Captain Beavan's specimen from Maunbhoom, at any rate it had red upon the cheeks. It would thus seem that while the typical *Beavani* of the Andamans is characterized by the absence of rufous on the cheeks and ear coverts in the female, and a somewhat paler and greener tint on the upper surface, the birds of continental India and Northern Tenasserim so far as I yet know them (unfortunately I have no *females* from Sikhim and other localities) are characterized by more or less rufous cheeks and ear coverts divided by a blue band, and some of those from Northern Tenasserim and Sikhim by a tint on the upper surface more approaching that of typical *asiatica*.

On the other hand, this Southern Indian bird (unfortunately I have only a male) is characterized by intense brilliancy of plumage, by its large size and by a bill conspicuously exceeding in length, every specimen I possess of *Beavani, asiatica* and the intermediate continental race.

140.—Dichoceros cavatus, *Shaw*.

"No where numerous, except perhaps in some of the wilder jungles on the lower slopes of the hills, though one pair might be found in each valley or glen of any size throughout the whole range. I have never seen more than three together. The hideous and harsh cry of this bird first of all perhaps attracts the attention of a new arrival on the hills, while its larger size, conspicuous colouring and extraordinary bill render it no less remarkable to the eye. I believe that the same pair of birds, if unmolested, will continue to build year after year in the same tree, but I am inclined to place little credit in the story of the male plastering up the female during the period of incubation, although it is quite likely he may feed her during the whole of that time. A note of a nest and egg secured in February will appear in Mr. Hume's 'Nests and Eggs,' &c.—F. W. B."

A splendid pair of this species carefully measured in the flesh and sexed have been received. The male differs as is

well known by its slightly larger size, decidedly larger bill and casque, and by having the posterior end of the casque black and the triangular patch on either side of the anterior portion of the casque, and the truncated groove and flat portion of the culmen in front of the casque also black. The irides, as in Burmese specimens, of the males were red, of the females pearly white. The dimensions of these two birds were as follows:—

Male—Length, 49·62; expanse, 67·5; wing, 20·5; tail, 18; tarsi, 2·4; bill over all from posterior margin of casque along culmen to point, 16; casque only, 6·5; greatest width of casque, 2·5; height of casque, 1·7.

Female—Length, 48; expanse, 62; wing, 20; tail, 17·25, tarsus, 2·37; bill over all from posterior margin of casque along culmen to point, 14·75; casque only, 6; greatest width of casque, 2·7; height of casque, 1·4.

It is not clear how the application of the Linnæan name *bicornis* to this species can be justified. I cannot verify all Linnæus' references, but his description, which ought I conceive to fix his name, accurately applies to *convexus* of Temminck, *Pl. Col.* 530, and can by no possibility apply to the present species.

Linnæus refers to Edwards' birds, pl. 281, fig. D. That again is a coarse but correct representation of the head of *convexus*, Tem. He also refers to Brisson's *Hydrocorax philippensis*; that is a compound description. The entire description of the plumage, with the exception of the tail (where Brisson has got into an inextricable muddle giving the bird 12 tail feathers, ten black and two white which no horn bill in the world has,) also refers *convexus*. As regards the beak and casque it is probable that he did describe this present species. Some others of Linnæus' references may refer to this species also; I am unable to refer to Amœn. Acad. Pet. Gaz.; Will. Orn., so cannot pronounce positively on this point, but Linnæus' own description which must, it seems to me, constitute the criterion of the species he intended to refer to, clearly and unmistakably refers to *convexus*, although in the diagnosis he talks of the casque, as *antrosum bicorni*; and it appears to me that the name of *bicornis* must henceforth be applied to *convexus* of Temminck and Shaw's name, which dates from 1811, be applied to the present species.

Mr. Gray makes two species out of these birds, the one to which he assigns the Linnæan name *bicornis*, he gives from Malacca, Sumatra, and Tenasserim. The other *homrai* of Hodgson, he gives from Nipal and Assam.

I have seen no specimens from Malacca or Sumatra, but after a careful comparison of 12 specimens from various parts of

Tenasserim with 22 others from the Assamboo Hills in the extreme south of India, the Dhoon, Sikhim, and Cachar, I cannot see my way to making more than one species out of the birds that occur within the limits of our Indian Empire.

There is no doubt that the Sikhim birds are, some of them at any rate, larger than those from Tenasserim and even Southern India, but in a large series, such as I have now before me, every gradation of size is to be met with; and so far as plumage and colouration of bill and casque are concerned, there is absolutely not the smallest constant difference between specimens obtained in different parts of the country.

As regards the shape of the casque there is undoubtedly the most conspicuous difference between different specimens. Holding the point of the bill towards one, and looking at the anterior margin of the casque, this margin in some specimens assumes the shape of a semi-circular curve, at times of a curve even deeper than a semi-circle, while again in other specimens it is a curve so flat as scarcely to deserve the name of a curve. In one specimen, for instance, from Darjeeling, the two anterior points of the casque are 3·5 inches apart; but the lowest point of the casque between these two points is only 0·35 below them. In another specimen, and this is from Kollidoo, the points of the casque are only 2·1 apart, and the lowest point of the casque between these points is 1·25 below them.

I believe that the former represents what Mr. Gray considered to be *homrai* of Hodgson, the latter what he considered to be *bicornis*. It was looking to these differences at a time when I had no opportunity of comparing a large series that I, in the first list of the birds of the Tenasserim Provinces (*ante* Vol. II, p. 470), separated the specimens obtained by us in Tenasserim into these two species; but I am convinced, now, that this distinction will not hold, as specimens from all localities equally present these differences, and this in what are obviously old adults.

Even from the same localities the size of the bill and casque varies greatly amongst apparently perfect adults; but unquestionably, as a whole, the Sikhim birds have them larger than any obtained elsewhere.

In one Sikhim bird, the bill and casque together measured from the posterior margin of the casque along the middle of the casque and culmen to point, measures 17·5 inches, and the greatest height of bill taking the two mandibles and the casque together is 5 inches; another Sikhim bird is 17·75 and 5 inches, and there are several Sikhim specimens over 17 and 4·75 inches. On the other hand, the largest South Tenasserim specimen measured in this same way is only 16 and 4·5. The rest average

smaller, and one very beautiful and apparently old adult is only 14 and 3·8. Specimens from Northern Tenasserim and Southern Travancore and the Dhoon seem intermediate in size. Under no circumstances, however, can a small difference like this by itself justify a specific separation and there are a good many Sikhim birds which are not larger than the largest of the South Tenasserim birds.

145.—Toccus griseus, *Latham.*

"Common in heavy jungle from 1,000 to 3,000 feet elevation. It has a very ludicrous call reminding one of a Punch and Judy show. It is shy and, unlike that of the last species, its flight is rapid and easy. The specimen sent had bright red irides and was a male. A full grown specimen in the Trevandrum gardens, and perhaps a female, has dirty white or pale grey irides.—F. W. B."

A male of this species, procured at an elevation of about 1,600 feet, measured:—

Length, 22; expanse, 26·5; wing, 8·25; tail, 9·5; tarsus, 1·6: bill at front along curve of culmen, 4·1.

The bill was horny yellow, overspread with a brownish red tinge, except towards the tips; the margin along the commissure, black; the tips, paler; the orbital skin, black; irides, red; tarsi and feet, greenish.

Dr. Jerdon's description does not correspond over well with this specimen.

The forehead is greyish white; a broad superciliary stripe from the nostrils over the eyes extending some distance back, a slightly brownish white; the feathers of the crown and occiput slaty grey; the latter conspicuously elongated and with greyish white shaft stripes; faint greyish white tippings to most of the feathers of the crown; the ear coverts dark brown paler shafted; feathers of the chin, whitish; entire throat and sides of the neck, grey; the feathers pale, almost white shafted. The whole of the plumage of these parts is dull, as is also that of the lower parts, but all the rest of the upper parts is well glossed. The entire back, rump, upper tail coverts, scapulars, and wing coverts, dark greyish dusky, with a faint greenish reflection on it, the coverts have mostly the faintest possible pale edges, and the shafts of many of the feathers have in certain lights a scarcely perceptible line on either side of them. The quills and tail feathers are black, with a greenish lustre on them, very conspicuous on the secondaries and tail feathers, except the central pair. The third to the eighth primary inclusive broadly tipped with pure white on both webs, the ninth similarly tipped but on the inner web only.

All the tail feathers but the central pair broadly tipped with white; breast, flanks, sides, and upper abdomen, dull blue grey; lower abdomen, greyish white to white; vent and lower tail coverts white, tinged with fulvous or dingy pale rufescent.

I may add that females procured in the Wynaad and on the Cardamon Hills only differ in being rather paler and duller above and below, in exhibiting less of the green gloss, and in having only three pairs of the tail feathers tipped with white. I have not specimens enough to enable me to determine whether this difference (three pairs white tipped in the one case, four pairs in the other) is individual or depends, as from my few specimens it would seem to do, upon sex.

I may notice that the young bird has the irides dirty yellow, that the bill is smaller, is entirely pale yellow, and not overspread with the reddish brown tint of the adult, has a black patch at the base of the lower mandible, and another on the basal portion of the culmen.

151.—Palæornis columboides, *Jerd.*

"Very common; not ascending to the tops of the hills, and being replaced at their base by the red-headed Parroquet. It occurs on the margin of heavy jungle, but is found most abundantly in the secondary growth on land which has once been occupied by the hill men. This species commences laying in the first week of January, and fresh eggs may be obtained early in February. The eggs are generally deposited without any attempt at a nest, beyond, perhaps, a few dried leaves in a natural cavity of a tree. The eggs, which are smooth, white, glossy, and of delicate texture, are from two to four in number.—F. W. B."

Two males and two females, one of the latter a young bird, all sexed by Mr. Bourdillon himself, fully bear out my remarks in regard to this species, Vol. II, p. 226.

A male measured in the flesh:—Length, 14; expanse, 14·5; wing, 5·5; tail, 8·75; tarsus, 0·5; bill from gape to point, 0·8; a finer male was nearly 15 inches in length and had a tail, 9·5 long.

A female measured:—Length, 12·25; expanse, 16·25; wing, 5·37; tail, 6·75. The bill was black; irides, yellow; and feet, grey.

153.—Loriculus vernalis, *Sparrm.*

"Fully as common as the last, at the same elevations, but less conspicuous on account of its smaller size. I took three very hard set eggs of this species from a hollow stump,

in the middle of March; the eggs were smooth, white, and glossy, averaging ·43 × ·33 inches.—F. W. B."

A lovely adult male, the crown, the most brilliant green, without a trace of the blue on the crown which, according to Dr. Finsch, characterizes the adult.

This specimen measured in the flesh:—Length, 5·62; expanse, 10·25; wing, 3·75; tail, 1·87.

164 *bis.*—Yungipicus gymnopthalmos, *Blyth.*

"Lives in the tops of high trees, and is as difficult to observe as to shoot.—F. W. B."

A female measured:—Length, 4·87; expanse, 9; wing, 2·87; tail, 1·25;

The bill and legs, plumbeous; the irides, yellow ochre; the bare orbital skin (and I do not remember to have seen this previously noticed), dull lake red.

165.—Hemicercus cordatus, *Jerd.*

"Like the last, frequents the tops of tall trees, singly or in pairs, but it has a peculiar loud call which attracts attention. Early in February, I observed a pair of these birds, working at a nest, but unfortunately they were frightened and left before laying any eggs.—F. W. B."

A pair of this species procured at Mynall have been sent by Mr. Bourdillon, unfortunately he did not himself sex them, but put them down as male and female according to what he found in Jerdon, so that these birds afford no additional evidence as to whether in opposition to what Jerdon says, and in accordance with what is the case with *canente*, it is the male that has the white-speckled head. I myself have now no doubt upon this point, the bird with a speckled-head is considerably the larger of the two, and has a markedly larger bill. The following are the dimensions of the two birds:—

1*st.*—Black forehead, speckled with white. Male (*as I believe*):—Length, 6; expanse, 12; wing, 3·72; tail, 1·25; bill at front, 0·88.

2*nd.*—Forehead and crown, fulvous. Female (*as I believe*):—Length, 5·75; expanse, 10·75; wing, 3·6; tail, 1·36; bill at front, 6·70.

166 *bis.*—Chrysocolaptes Delesserti, *Malh.*

"Inhabits the lower ranges of forest.—F. W. B."

A single female, clearly belonging to this species or subspecies. It measured in the flesh:—Length, 11·5; expanse, 18·75; wing, 5·75; tail, 4; bill at front, 1·7. The irides were yellow.

169.—Thriponax Hodgsoni, *Jerdon.*

"In the neighbourhood of large undisturbed tracts of forest, this bird is fairly common and not very shy, but it soon leaves districts, when the forest is being cleared to any extent.

"I have seen this bird from 600 to 3,000 feet elevation. It has a loud and rather pleasant cry, which it utters at intervals when climbing up the stem of some large tree, and when passing from one tree to another it emits a loud chuckle. It rarely takes a long flight, and a pair may be heard a great distance off calling to each other, as they pass from tree to tree.—F. W. B."

A male measured:—Length,18; expanse, 24·5; wing, 8·6; tail, 7·5; tarsus, 1·35; bill at front, 2·55.

A female measured:—Length, 17·12; expanse, 24; wing, 8·1; tail, 7·25; tarsus, 1·29; bill at front, 2·5.

175.—Chrysophlegma chlorophanes, *Vieill.*

"Almost as abundant as the next species, but less noisy, except during the breeding season. In February and March, the plaintive monotonous call of these birds (which somewhat resembles the breeding call of the common Pariah Kite), may be heard at all hours of the day, as they cling motionless to the topmost bough of some tall forest tree. I have rarely heard them utter any sound during flight.—F. W. B."

185.—Chrysonotus rubropygialis, *Malh.*

"One of the commonest birds among the hill forests, not occurring in the low country. I obtained two eggs of this species taken in March.—F. W. B."

I have already remarked, Vol. III, p. 328, that in my opinion this species could not be separated from *C. intermedius*, Blyth. I have now compared six Travancore specimens of the present species, with a large series of *intermedius* from various parts of the Tenasserim Provinces; in my opinion, there is absolutely no constant difference in the plumage of the two, although possibly the heads of the males in the Southern birds are of a slightly deeper and duller red. As regards the size again, some birds of both races are precisely identical in dimensions, alike of bills and wings, but this much may be conceded, that taking a series of both, the Southern birds would average somewhat smaller. This at any rate is true in my series, but it is not at all improbable that if I had as large a series of the Travancore birds, as of the others, I might meet with equally large specimens of the former.

In the three Travancore males, the wings are, 5·3, 5·4, 5·55; amongst the Burman birds, though there are many wings as

small as these, the majority certainly exceed 5·6; and in one or two cases extend to 5·8 and 5·9.

The three females from Travancore have the wings, 5·2, 5·35, 5·45. Amongst the Burman females there are plenty of wings from 5·18 to 5·45; but more than half the birds have the wings, 5·5 and upwards.

I cannot think that a difference of this nature is sufficient to justify the retention of both species.

194.—Megalaima viridis, *Gmel.*

"Another very common bird—its loud and rather peculiar call may be heard at all hours of the day, and sometimes at night during fine weather. They build in very rotten old tree stumps, cutting a hole for the purpose and leaving a number of chips of the rotten wood to serve as a nest, laying in March. I have never seen the eggs, but obtained two unfledged young early in April.—F. W. B."

Some years ago, Captain Hayes Lloyd described a Green Barbet of Western India, as distinct from *M. viridis* under the name of *M. Sykesi (vide ante*, Vol. I, p. 419.)

The points upon which he appears to have relied were that it was larger, and that the brown of the head and nape was paler and with a coppery gloss. He obtained the species, he said, on the summit of Matheran and other detached hills in the Concan.

Now I have before me a series from Matheran, three specimens from Mahabaleshwar a huge series from various parts of the Neilgherries, from the base to the summit, a specimen from the Cardamon Hills, another from Mangalore, a series from Aujango, and a couple of specimens from the Assamboo Hills in South Travancore.

I am bound to affirm that so far as plumage goes, every Matheran bird can be matched exactly in the other series; from all localities some have their heads paler, some darker, and the paler ones often have what may be called, by courtesy, a sort of coppery gloss.

I think the Matheran birds do *average* slightly larger than the rest, but there is certainly not enough difference in size to justify specific separation, and the largest bird of all that I have is one from Ooty. I have very carefully measured the wings of a number of birds with the following results:—

Matheran, 4·18, 4·2, 4·2, 4·21.

Mahabaleshwar, 3·75, 3·75, 4·2.

Neilgherries, 4·1, 4·05 4·4, 4·07, 3·9, 3·95, 3·92, 4·17, 4, 4·1, 4·05, 4·05.

Cardamon Hills, 3·8.
Mangalore, 3·85.
Aujango, 3·75, 3·7, 3·7, 4, 3·8.
Assamboo Hills, 3·8, 3·9.

Captain Lloyd gives the wing of his type specimen as 4·3. I have no Matheran bird in which the wing exceeds 4·2; but I have an Ooty bird with a wing 4·4.

I think *Megalaima Sykesi* may be suppressed.

198.—Xantholaima malabarica, *Blyth.*

"This species is very common throughout the low country, and during the hot weather ascends the lower slopes of the hills. Its call, as Jerdon mentions, is similar to that of the crimson-breasted Barbet (*X. hæmacephala*), but the two are easy to be distinguished from each other. My brother obtained two fresh eggs of this species early in March at an elevation of about 500 feet above sea level. The eggs were white, smooth, and glossless, measuring 0·64 by 0·62; and 1 by 0·66. They were placed without any attempt at a nest in a hole cut by the birds in a dead branch about 20 feet from the ground.—F. W. B."

205.—Heirococcyx varius, *Vahl.*

"Abundant in the semi-cultivated land of the plains and occasionally penetrating the jungles at the foot of the hills to 1,000 feet elevation. Never ascends the hill slopes to any height, though common in the low country.—F. W. B."

A female measured:—Length, 13·25; expanse, 22·25; wing, 7·6; tail, 6·75; tarsus, 1·0; bill from gape, straight to point, 1·25.

233.—Leptocoma minima, *Sykes.*

"This beautiful little bird is common on the edges of forest and is slightly gregarious in habit, three or four hunting about together amongst the boughs of some Gamboge tree, which is a tree they seem particularly to like. They are not at all shy, and when sitting quiet in thick brushwood, I have seen them perch inquisitively within a few feet of my face. I have not obtained the eggs of this species, but Mr. Ferguson observed a pair commence a hanging nest at the extreme end of a Gamboge bough at some height from the ground. Unfortunately the birds left the nest unfinished.—F. W. B."

Two males measured in the flesh:—Length, 3·5, 3·7; expanse, 5·37, 5·62; wing, 1·81, 1·8; tail, 1·0, 1·1; tarsus, 0·48, 0·5.

234.—Arachnechthra asiatica, *Lath.*

"This species occurs abundantly in the open jungle near the foot of the hills, it is very active and keeps up an incessant chirping throughout the hottest part of the day, when nearly all other birds, except the crimson-throated barbet, are silent.—F. W. B."

235.—Dendrophila frontalis, *Horsf.*

No specimen received.

"This beautiful little Nuthatch is another common species on the hills, principally frequenting the margins of clearings in the forest, when small parties of five or six individuals may be observed creeping about the stems and boughs of dead trees in search of their insect food.—F. W. B."

261 *bis.*—Lanius lucionensis? *Lin.* (S. F. Vol. II, p. 199.)

"A single specimen obtained in a felled, but unburnt, clearing of forest early in February at an elevation of about 2,000 feet. —F. W. B."

A specimen of a Shrike nearly adult, belongs either to this species, or, as I suggested, in the case of a very similar specimen from Ceylon (Vol. I., p. 434), to some not yet discriminated species. I have a very large series of *lucioniensis*, from the Andamans, and also specimens from China, but this bird does not *altogether* agree with any. The wing, tail, bill, all are those of *lucionensis*, but the forehead, crown, and occiput are the same pale grey, brown as the back. There is a broad white or whitish supercilium running from the lores, over the black ear coverts, but there is no paling towards the front over the head which seems to be present more or less in all specimens of *lucionensis*. I need scarcely add that it is certainly not *cristatus*, as the whole head, nape, back, and scapulars, are a perfectly uniform dull pale earth brown, without the faintest tinge of rufous and paler a good deal than in any of the young *lucionensis* I have.

264.—Tephrodornis sylvicola, *Jerd.*

"Not uncommon in the margins and glades of forest, appearing to prefer the neighbourhood of cultivation, and gregarious in parties of five or six individuals; wandering about a good deal from tree to tree.—F. W. B."

267.—Hemipus picatus, *Sykes.*

"Not very abundant; frequents the tops of trees at the higher elevations.—F. W. B."

A male with the black back measured:—Length, 5·12; expanse, 7; wing, 2·3; tail, 2·12; tarsus, 0·56; bill from gape, 0·65.

272.—Pericrocotus flammeus, *Forst.*

"A common species of gregarious habits, generally (as Jerdon says) frequenting the tops of tall trees. The males have a rather pleasing, but feeble warbling song, which they utter on the wing, while taking a short flight from the top of a tree, and usually returning to the same perch.—F. W. B."

In a recent article on the *Pericrocoti* by Mr. Sharpe (Vol. III., p. 207), he takes exception to my statement that in *flammeus* the red of the wing patch only extends on to the 5th primary, and he remarks:—"I find in one specimen that the red colour extends on to the 5th primary as noted by Mr. Hume, but in another it only goes to the 4th, so that character is not constant."

In the first place I do not understand here what is meant by the expression "*only* to the 4th," because this would look as if Mr. Sharpe was counting from the front of the wing, and that by the red extending to the 4th there was less red on the wing than when it extended to the 5th; I can only suppose that "only" here is a slip of the pen for "also."

Accepting this view, I must submit to Mr. Sharpe that in my opinion either the bird he examined was not *flammeus*, or that the wing examined was imperfect. In a very large series I cannot find a single male in which any appreciable amount of red occurs on the outer webs of any of the first four primaries, and this, I must consider, to be a constant character. In about one specimen in ten, a hair line of red occurs on the exterior margin of the fourth; but I am unable to find a single specimen in which the wing is perfect, exhibiting any appreciable amount of this colour on the outer web of the fourth primary.

These Travancore specimens all agree precisely with the Neilgherry birds in this particular.

A male measured:—Length, 7·5; expanse, 10·25; wing, 3·68; tail, 3·75; tarsus, 0·68; bill from gape, 0·72.

Female:—Length, 7·37; expanse, 9·5; wing, 3·6; tail, 3·5; tarsus, 0·65; bill from gape, 0·75.

280.—Dicrurus longicaudatus, *Hay.*

"Common, especially near cultivation; less abundant in deep forest and at the summit of the hills.—F. W. B."

These specimens are typical *longicaudatus.*

A female measured:—Length, 11; expanse, 15·37; wing, 5·4; tail, 6. Another female was only 10 inches long, and had the wing only 5. A third was 11·25 long, and had the wing 5·55.

282.—Chaptia ænea, *Vieill.*

"Common like the last.—F. W. B."
Wing, 4·7.

285.—Dissemurus malabaricus, *Scop.*

"One of the commonest birds, both in the jungles at the foot of the hills and up to 3,000 feet elevation. It has a great variety of notes, some of them being beautifully clear and melodious, and much imitative power. I have often been amused to hear it imitate the cry of the Harrier Eagle, and see it make a sudden charge down on some smaller bird, either in sheer mischief, or to secure some insect which the latter has captured. I have also heard one imitate exactly the evening note of the Ground Thrush (*Brachyurus coronata*). During the breeding season they are very bold, and a pair think nothing of attacking and driving off from the neighbourhood of their nest either the Harrier or Black Kite Eagle. I once had an adult bird brought to me, which had been caught with limed twigs. Within a few hours of capture it would take cockroaches and other insect food from the hand, and soon got very tame; but, unfortunately during an absence from home, my servant determined that it *ought* to eat rice and gave it nothing else, so the poor bird died of sheer starvation.—F. W. B."

I have already referred to this genus, Vol. II., p. 212, and I can only add that I have hitherto failed to discover any constant difference whether in size, size of crest, size or shape of bill, general tone of colour, or any other point between Southern Indian specimens and those from Rangoon and its neighbourhood, which I understand to be the true *paradiseus*, and I think that *malabaricus* will have to be merged as a synonym of *paradiseus*. The following are the dimensions of a male from Travancore :—

Length, 24·5; expanse, 18·5; wing, 6·38; tail to end of long tail feathers, 18·37; bill from gape, 1·3; tarsus, 1·1;

288.—Tchitrea paradisi, *Lin.*

"Very common in the low country jungles, only ascending the hills during the hot weather of February and March.—F. W. B."

290.—Myiagra azurea, *Bodd.*

"Not uncommon; frequenting the tops of trees in small parties, often in company with the "Pied Shrike" (*Hemipus picatus*).—F. W. B."

Two males measured in the flesh:—Length, 5·5, 6·5; expanse, 7·24, 8·12; wing, 2·6, 2·87; tail, 2·62, 3.

297.—Alseonax latirostris, *Raffl.*

"Common during the winter months; of rather solitary habit.—F. W. B."

A male measured in the flesh:—Length, 5; expanse, 8; wing, 2·7; tail, 1·87.

A female measured:—Length, 4·75; expanse, 8·12; wing, 2·8; tail, 1·91.

300.—Ochromela nigrorufa, *Jerd.*

No specimen received.

"Rather scarce, of solitary and silent habits, and frequents dense irul and other thickets from 2,500 feet elevation upwards. —F. W. B."

301.—Eumyias melanops, *Vigors.*

"Common though not abundant up to 2,000 feet elevation, and prefers clearings in the forest wherever there are heaps of unburnt brushwood lying about. Is a winter visitor from December to March.—F. W. B."

302.—Eumyias albicaudata, *Jerd.*

No specimen received.

"Is more frequently observed in forest with thick underwood, and prefers a rather higher elevation, than the last species (*E. melanops*).—F. W. B."

307.—Cyornis ruficauda, *Swains.*

This species has a very wide distribution, we have it from Murree, Cashmere, Simla, Mussouri, and near Gangaotree, Raipoor, Ahmednuggur, Ootakamund, and Southern Travancore, but it does not occur in Sikhim or eastwards, I believe.

307 *bis.*—Cyornis Mandelli, *Hume* (*S. F. Vol. II. p.* 510.)

I described this species fully from a Sikhim specimen, Vol. II, p. 510; since I described it, Mr. Mandelli has obtained three more specimens, and now we have two more from Mr. Bourdillon from Travancore obtained at an elevation of about 2,000 feet, one of which is by dissection a male, and, except that the bill is slightly larger, corresponds exactly with the bird described by me. In that description one misprint occurred, the tarsus is given as 0·6 instead of 0·5. 0·51 would be most correct.

It is possible that this male may be a young one, and that the adult male may also be blue, but it seems more likely that it belongs to the *ruficauda* group, which equally occurs in the Himalayas and Travancore, besides other suitable intervening localities. I originally doubted whether these birds might not be females of *C. pallipes*, Jerdon, but dismissed that idea as the present species had then only occurred in Sikhim, while *pallipes* was entirely a southern bird. When now more specimens occurred from Southern India, I again reverted to this idea. I find, however, after careful comparison that this idea is quite untenable; the birds are absolutely distinct; the shape of the bills are different, being longer and narrower in *pallipes*; the shape of the wings also is different; in *pallipes*, the 4th and 5th quills are equal and longest, the 6th sub-equal. In the present species the 3rd and 4th are sub-equal and longest, the 5th slightly shorter. The tarsi again are scarcely over 0·5 in the present species, while they are slightly over 0·7 in *pallipes*, and the feet of the one are nearly double the size of the other.

And here I ought to notice that Dr. Jerdon's description of *pallipes* is very brief and not altogether satisfactory. I have three specimens obtained at the very same locality where Jerdon obtained his type, and therefore though in slight particulars my description and dimensions may not accord with his, mine may, I believe, be relied on as correct.

Cyornis pallipes, *Male.*

Length, 6·37, 6·5; expanse, 9·8, 10; wing, 2·95, 3; tail, 2, 2·5 nearly; bill at front measured from the edge of the feathers, 0·48, 0·53; but measured from the junction of bill to the skull, 0·68, 0·7; tarsus, 0·71, 0·73; wing when closed falls 1·25 short of end of tail; the fourth and 5th quills are equal and longest; 6th slightly shorter; 3rd 0·1 shorter than 4th; 2nd 0·47 shorter than 4th; 1st 1·35 shorter than 4th.

The bill is black; the irides, brown; the feet seem to vary in colour, not one was pale whitish flesh colour as described by Jerdon. In one the feet were pale whity brown, in another they were bluish white, in a third very pale leaden grey.

The lores and an excessively narrow line across the forehead at the base of the bill, black; above this the forehead and two long superciliary stripes, are of a perceptibly paler and brighter blue than the rest of the plumage. The belly, abdomen, vent, and lower tail coverts, and greater portion of wing lining, pure white; sides and flanks, greyish; chin, blackish; inner webs of the quills, greater coverts, and tail feathers, hair brown; the rest of the plumage dull blue, indigo in some

specimens, somewhat lighter in other specimens, but in all specimens darker than in *unicolour*.

To return to *Cyornis Mandelli*, Mr. Bourdillon records the following dimensions in the flesh:—

Length, 5·25; expanse, 7·5, 8; wing, 2·87, 2·75; tail, ♀ 2; ♂ 2·37; bill at front, from feathers, male 0·5; female, 0·43; from junction with skull, ♂ 0·65; ♀ 0·6 barely; tarsus, 0·51.

The bill above, blackish; tip and beneath, yellowish horny; legs, feet, and claws, white; irides, dark brown.

342.—Myiophoneus Horsfieldi, *Vigors.*

"Very common from the base to near the summit of the hills, frequenting alike jungle and open clearings, though generally found in the neighbourhood of some running stream; I have known this species to build on ledges of rock and in a hollow tree overhanging a stream, in either case constructing a rather loosely put-together nest of roots and coarse fibre, with a little green moss intermixed. The female lays two to four eggs in April, and both birds assist in the incubation.—F. W. B."

A female measured:—Length, 10·62; expanse, 16·5; wing, 5·6; tail, 3·75; tarsus, 1·65; bill from gape, 1·5.

345.—Brachyurus coronatus, *Müll.*

"A migratory species, arriving in considerable numbers about the beginning of October and remaining till late in May. In the early morning and after sunset they are rather noisy birds, whistling in answer to each other among the brushwood.—F. W. B."

355.—Cyanocincla cyana, *Lin.*

"Another migratory species, visiting the hills during the same period as the last, but in smaller numbers. It is of solitary habits, living entirely in open country, never in the forest.—F. W. B."

353.—Orocætes cinclorhynchus, *Vig.*

"A winter visitor from October to April, preferring the neighbourhood of cultivation from 500 to 2,500 feet elevation.—F. W. B."

354.—Geocichla cyanotis, *Jerd. & Selb.*

"Like the foregoing, a winter visitor, but of rather more crepuscular habit than the last, spending the day in shady thickets.—F. W. B."

A female measured:—Length, 7·5; expanse, 12·25; wing, 4·2; tail, 2·75; tarsus, 1·25; bill from gape, 1·0.

372.—Oreocincla neilgheriensis, *Blyth.*

"Rather scarce and solitary, found in thick jungle from the summit of the hills down to 2,000 feet elevation.—F. W. B."

Of two males, the following dimensions are given:—

Length, 9·75, 9·25; expanse, 15, 13·25; wing, 5; tail, 3, 3·25; bill from gape, 1·4, 1·3; tarsus, 1·12, 1·0.

389.—Alcippe poiocephala, *Jerd.*

Identical with specimens from the Neilgherries and Pulneys.

390 *bis A.*—Alcippe Bourdilloni, *Hume.*

This bird will be found fully described further on in this number, and I have nothing to add to what I have there said.

398.—Dumetia albogularis, *Blyth.*

"Common from 1,000 to 3,000 feet elevation. Its habits are very well described by Jerdon.—F. W. B."

A specimen measured in the flesh:—Length, 5·62; expanse, 6·25; wing, 2·125; tail, 2·25; tarsus, 0·73; bill from gape, 0·57.

399.—Pellorneum ruficeps, *Swains.*

No specimen received.

"This bird appears to be scarce. I have only obtained a single specimen in thick underwood at an elevation of 2,500 feet.—F. W. B."

404.—Pomatorhinus Horsfieldi, *Sykes.*

"A common bird in thick underwood at all elevations, but it especially frequents the reed like *irul* jungle. It builds a large wove nest of grass and ratan leaves (*Calamus rotang?*), placed beneath some overhanging bank or tuft of grass, or occasionally in some thick bush.—F. W. B."

409.—Garrulax Delesserti, *Jerd.*

"Has the same distribution throughout the hills as the last, but its habits are much more gregarious; a flock sometimes numbering as many as twenty individuals, which feed a good deal on the ground, and when disturbed utter loud shrill chattering notes of alarm.—F. W. B."

A specimen measured in the flesh:—Length, 9; expanse, 12·5; wing, 4·3; tail, 4; tarsus, 1·45; bill at front from margin of feathers, 1·0.

A nestling, a few days old, is brown above, slightly olivaceous on the wing, white below, and brownish white on the sides of the neck.

445.—Hypsipetes ganeesa, *Sykes.*

"Very abundant at the higher elevations, and found also, though in small numbers at the foot of the hills. They are gregarious and very noisy birds, apparently preferring the tops of high trees, though they feed also on berries, &c., found in the secondary jungle.—F. W. B."

Doubts having been again raised of late years as to the specific identity of *Hypsipetes neilgheriensis* of Jerdon, and *H. ganeesa*, Sykes. I have carefully compared seven specimens from Mahabaleshwar, with nine from the Neilgherries, three from the Assamboo Hills, and four from Ceylon. I find that adults and young birds from the three former localities are precisely similar; in the younger birds, the wings are browner, and the bills smaller, but there is no difficulty in matching every Mahabaleshwar bird with some Neilgherry one. Birds from Ceylon are in all respects, but one, identical with those from the other localities, but they certainly do appear to have *somewhat* larger bills.

I entertain no doubt that the birds from all these localities should henceforth stand under Sykes' name of *H. ganeesa.*

450.—Criniger ictericus, *Strickl.*

"A very common bird chiefly frequenting secondary jungle, wandering about in small flocks and feeding almost entirely on seeds and fruits.—F. W. B."

464.—Phyllornis malabarica, *Lath.*

"A common bird in open jungle with large trees. The male makes an attempt to sing, uttering a few notes, something like those of the Bronzed Drongo (*Chaptia ænea*).—F. W. B."

469.—Irena puella, *Lath.*

"One of our commonest birds, occurring in the jungles at the foot of the hills and up to 3,000 feet. Both sexes have a clear twittering note which they utter from the top of some tree shortly before sunset, and during the breeding season throughout the greater part of the day. Their food consists partly of insects and partly of berries. Their breeding season is February and March, and I have obtained fresh eggs as late as April. A note of a nest taken appears in the rough draft of Mr. Hume's "Nests and Eggs" of Indian birds, p. 298.—F. W. B."

A male measured:—Length, 9·5; expanse, 15·5; wing, 4·95; tail, 4·12; tarsus, 0·67; bill from feathers, 0·87; from base of skull, 1·07; lower tail coverts fall 1·17 short of end of tail; upper tail coverts 1·8 short of end of tail.

507.—Larvivora cyanea, *Hodgs.*

"This species is, I believe, only a visitor. During the winter months it is common and numbers may be seen hopping about the fresh earth, wherever a new bridle-path has been cut through the forest. It is a very silent bird, and I do not know its note.—F. W. B."

538.—Prinia Hodgsoni, *Blyth.*

"Not uncommon in open tree jungle, or the lower slopes of the hills. It has a feeble little twittering song.—F. W. B."

556.—Phylloscopus magnirostris, *Blyth.*

"Less abundant than the following species.—F. W. B."

556.—Phylloscopus nitidus, *Lath.*

"Common in heavy jungle, for the most part frequenting high trees, but sometimes descending to the underwood.—F. W. B."

592.—Calobates melanope, *Pallas.*

No specimen received.

"One of our most abundant winter visitors, arriving early in September and not leaving till May. Great numbers may be seen in almost every piece of cleared land where there is running water.—F. W. B."

595.—Limonidromas indicus, *Gmel.*

"Another winter visitor, which arrives soon after and stays nearly as long as the preceding species. It is of solitary habit and frequents open jungle in the neighbourhood of cultivation. Its note bears a considerable resemblance to that of the English Chaffinch.—F. W. B."

I have hitherto always believed that this was a permanent resident in Southern India.

600.—Corydala rufula, *Vieill.*

"Found on all the bare grass ridges, except perhaps on the extreme summits of the hills.—F. W. B."

I dare say that hereafter more species than one will be made out of this *Corydalla*. The local races differ quite as much as do those of *Alauda gulgula*. I notice that in the Southern examples of the present species, the bills are somewhat longer and slenderer, the hind claw is shorter, the markings on the upper surface, I mean of the head and upper back, are better defined and more pronounced. I do not, however, consider that these and other similar small differences, observable in series from other distant localities, are of specific value.

645.—Parus cæsius, *Tick.*

"Not uncommon at the higher elevations, wandering about in small parties of four or five individuals.—F. W. B."

648.—Machlolophus Jerdoni, *Blyth.*

"Is often seen in company with the foregoing.—F. W. B."

678.—Dendrocitta leucogaster, *Gould.*

"One of our commonest birds from the foot of the hills up to 3,000 feet. Of rather gregarious habit, three or four wandering about with as many Racket-tailed Drongos (*D. malabaricus*) which together form a very noisy party.

"A note on the nidification of this species will be found in Mr. Hume's "Nests and Eggs," p. 424.—F. W. B."

Some misprint, I think, has occurred in Dr. Jerdon's description of this bird, or possibly he may have copied somebody else's description without verifying it.

In the first place. The scapulars, back, and rump are *not* bright chestnut bay, the two former are dull, somewhat ferruginous ochre, and the rump is white. The upper tail coverts are not whitish but pure white. Then of the tail it is said :—"Tail black, with the two outer feathers ashy grey, broadly tipped black, as is the half of the 5th pair and the base of the 4th."

This should stand :—"Tail black, with the basal two-thirds of the central pair, the basal two-fifths of the second, and the extreme bases of the third pair grey or greyish white."

The following are the dimensions of two fine males recorded in the flesh :—

Length, 19·25, 17·75; expanse, 16·05, 16·25; wing, 5·85, 5·5; tail, 12·25, 11·25; tarsus, 1·15, 1·12; bill from gape, 1·25, 1·22.

688.—Temenuchus malabaricus, *Gmel.*

"Common in the jungle at the foot of the hills, when they may be observed in considerable flocks, but rarely ascending to 2,000 feet elevation.—F. W. B."

Is T. Blythi, Jerdon, really a good species? I have never yet succeeded in obtaining or getting sight of a specimen, that with a large series of *malabaricus* it was possible to separate. The colour in the head of this latter species varies from grey almost to white.

692.—Eulabes religiosa, *Lin.*

"Perhaps the most abundant and widely distributed species of the hill birds, being found in equal numbers at all elevations. The Hill Mynah is a very lively and noisy bird, towards

sunset especially. A note on the nidification will be found in Mr. Hume's "Nests and Eggs," p. 435.—F. W. B."

A male measured:—Length, 8·75; expanse, 17·5; wing, 5·56; tail, 3; tarsus, 1·25; bill from gape, 1·25.

700.—Munia pectoralis, *Jerd.*

"Another common species residing on the hills all the year round. It is gregarious in habit, and feeds on grass and other small seeds. The nest is a large loose construction of fine creeping-grass, with perhaps a few feathers interwoven, deposited in a hollow stump, and contains six to eight white eggs laid about June or July.—F. W. B."

I have in Vol. III. p. 263, described the young of this species, Mr. Bourdillon has sent others precisely similar to what I there described, and one somewhat older in which the shafts on the back and rump are beginning to shew out somewhat paler, and the breast is becoming a warmer brown.

775.—Osmotreron malabarica, *Jerd.*

No specimen received.

"These birds principally frequent the lower jungles, where they may be found in great numbers in the neighbourhood of the hill men's clearings. But in February and March they ascend the hills to over 2,000 feet elevation. Their note is a low chuckling whistle.—F. W. B."

781 *bis.*—Carpophaga cuprea, *Jerd.*

"An abundant species occurring at all elevations from the base to the very summit of the hills, whenever there is heavy forest. As the generic name implies, their food consists entirely of the larger jungle fruits, and they appear to be very greedy feeders, stuffing themselves to repletion with any favourite fruit. Their note is a peculiar deep booming coo, but in addition to this they utter a low guttural croak of suspicion while seated motionless on some bough, should anything unusual attract their attention. They take some time getting under weigh, but once well started their flight is rapid, and they can carry off a large quantity of shot. I have not taken a nest, but believe they build in lofty trees, laying during March and April.—F. W. B."

I pointed out, Vol. III. p. 328, that the Southern Indian Carpophaga was different from the Himalayan ones. I have now compared five of the former with a large number of the latter. I find that most of the differences I pointed out hold thoroughly good.

In the first place the Southern bird averages decidedly smaller; of five specimens of *cuprea* all fine adults, the wings measure, 8·87, 8·85, 8·95, 9·1, 8·9. A number of *insignis* measure, 9·6, 9, 9·3, 10, 9·93, 10, 9·5, 9·5.

In the second place the whole lower surface in *insignis* is a pale cold grey, without a trace of vinous, and the wing lining is much the same colour; in *cuprea*, except the throat, the lower surface is a warm vinous grey and the wing lining is a very much darker slaty grey.

In the third place the upper back, interscapulary region, and lesser scapulars in *insignis* exhibit a strong vinaceous purple tinge, this is entirely wanting in *cuprea*.

786.—Palumbus Elphinstonii, *Sykes*.

"Is I believe a resident, preferring dense jungle at the higher elevations.—F. W. B."

879.—Chalcophaps indica, *Lin.*

"During February and March these birds abound at all elevations, but the greater number descend to the lower jungles during the rainy and winter months, when their favourite place of resort is the *irul* and bamboo thickets, which skirt the margin of the hill forests.—F. W. B."

An adult male measured:—Length, 10·25; expanse, 18·5; wing, 6·1; tail, 3·75; tarsus, 1·06; bill from forehead, 0·95.

The bill was bright red; legs and feet, dull purple; irides, dark brown.

The female measured:—Length, 10; expanse 16; wing, 5·75; tail, 3·75; tarsus, 1·0; bill from front, 0·9.

Bill, bright red; orbital skin and legs, flesh colour; claws, slaty; irides, brown.

A nestling bird is not, as Dr. Jerdon says, "dusky above, with a little green and barred below," but it is a warm brown above with all the feathers, except those of the head and quills, broadly tipped with chestnut and with a coppery green lustre on the scapulars and the outer webs of the tertiaries and later secondaries and with all the primaries margined with chestnut; below it is dusky barred with chestnut.

813.—Gallus Sonnerati, *Tem.*

"The grey Jungle Fowl is to be found at all elevations from the extreme summit of the hills, where it is perhaps more abundant, down to the lower slopes. About the commencement of the cold weather the males are very noisy and may be heard crowing defiance to each other from all parts of the jungle. They seem to prefer the *irul** and bamboo thickets,

* I do not know what tree is meant. The tree known all over S. India as irul-maram, or irul tree is the *Mesua ferrea*, but this is a huge tree, and Mr. Bourdillon above speaks of his *irul* as "reed-like."—A. O. H.

and are not easily shot, for unless put up by a well-trained dog they run right away when approached. I have several times had eggs brought to me by the hillmen, which they declared were the eggs of Jungle Fowl, and I once saw a nest containing three slightly set eggs in the middle of March. The nest was a mere depression in the ground under a tuft of grass at the edge of an *irul* thicket. The eggs which were very similar to those of an ordinary hen measured $1\frac{7}{8} \times 1\frac{7}{8}$ of an inch.—F. W. B."

912.—Porzana ceylonica, *Gmel.*

"I know nothing of the habits of this bird: a single specimen having been procured by Mr. Ferguson in some paddy-fields near the foot of the hills at about 400 feet elevation. —F. W. B."

I long ago pointed out, Vol. I. p. 440, that Mr. Blyth's *P. amauroptera* was merely the female of this species; Dr. Jerdon had described the male, but not the female. It may be as well to mention that the female differs in being smaller than the male, in having the breast a duller and browner ferruginous chestnut, and by having this colour replaced on the whole of the top of the head, occiput and nape, by a brown, uniform with the back, and on the cheeks, ear coverts, and sides of the neck by a much paler and more earthy brown.

The only chestnut on the head of the female is a band running from the top of the eye over the lores to the forehead. The feathers bounding the white throat are generally somewhat rufescent, and the earthy brown on the sides of the neck has also at times a faint rusty tinge. I have not as yet secured sufficient specimens to make certain that old females do not assume the plumage or nearly the plumage of the adult males. I do not think that this is the case, but it may be so. Again, I am not certain that the young male is not at one stage similar to the female above described, but I think it likely. I have only two, now at hand, adult males and an apparently adult female, sexed by dissection; the female which I have above described was probably adult, having been shot in company with one of the males.

931.—Butorides javanica, *Horsf.*

No specimen received,—

"This bird is a winter visitor. It is very silent and solitary. During the months of November to March it is to be found among the rocks of the larger streams up to about 2,000 feet elevation, and always in dense jungle.—F. W. B."

A. O. H.

A Note on Pellorneum minor, Hume and P. Tickelli, Blyth.

By Eugene W. Oates, C.E.

The Editor of Mr. Blyth's catalogue of the Birds of Burmah (J. A. S. B., part II., 1875, extra number) tells us that *P. minor*, Hume, is a synonym of *P. Tickelli*, Blyth. I think that Lord Walden could never have seen a specimen of the latter, nor even have read Mr. Blyth's original description of the bird; otherwise he would not have made such a strange mistake.

Tickelli was described almost simultaneously by two naturalists, and their descriptions, though brief, agree well together and give us all the really essential particulars of the plumage.

In *minor*, the top of the head is bright chestnut, and the remainder of the upper surface, olive brown. In *Tickelli*, the *whole* upper surface, including the head, is uniform olive brown, *slightly* rufous only.

In *minor* again the breast and flanks are *boldly* streaked with dark brown, while in *Tickelli* there are a few very faint marks on the breast only, so faint as to be barely noticeable. These points alone will enable any one in future to discriminate the two species at a glance.

The dimensions of both species are given at pages 120 and 121 of "Stray Feathers" for 1875. The difference in length is half an inch or more, and *minor* must, I think, weigh fully one-third more than *Tickelli*.

Mr. Swinhoe's *sub-ochraceum*, from the description, may well be, as Mr. Hume has already suggested, the same as *minor*; it cannot possibly be a synonym of *Tickelli*, for it is distinctly said "crown, richer rufous" (than in *ruficeps*), and I have shewn above that *Tickelli* has no rufous crown.

P. minor is widely distributed. It occurs throughout Pegu and Tenasserim, except, as far as I know, in the evergreen forests of the Pegu hills where *Tickelli* replaces it. I shot about a dozen of the latter, but on looking over my collection after returning from my hill trip, I found that only two specimens had been preserved. All the birds I shot and saw, however, were similar in all respects.

It is a pity that Lord Walden in his capacity of Editor should have arrived at hasty, and, as I think, in many cases, erroneous conclusions. In dealing with many of Mr. Hume's new species, he might surely have vouchsafed a few words of explanation as to the reasons which have led him to consider them invalid. In the case of the above two birds his conclusions are palpably wrong, and I fear that his *dicta* will not be readily accepted by those who are conversant with local Indian ornithology.

On the Identity of Drymoipus terricolor, and Drymoipus longicaudatus.

After re-examining my whole series of these little Wren Warblers I feel much inclined to concur with Mr. Brooks in uniting them. I still consider the bird of the hills of Southern India to be distinct, and should have retained for it Sykes' name *inornatus*, but for Mr. Brooks' assurance, *ante* p. 274, that Sykes' type belongs to the northern form. The southern form must probably stand as *D. fuscus*, Hodgson.

The main fact on which I should rely for the identity of the two supposed species is that, broadly speaking, all the specimens obtained from March to September belong to the *terricolor* type, all those obtained from October to January belong to the *longicaudatus* type, while the February birds are somewhat intermediate. There are a very few exceptions to this generalization which I shall notice further on, but the mass of the evidence leads to the conclusion that the birds are identical, and that the two names merely indicate the summer and winter plumage and must both now merge in Sykes' *inornatus*. The only other alternative, open to us, is to suppose that both are migrants, the one replacing the other in the winter; but this, looking to all the circumstances of the case, appears scarcely possible.

On the other hand, if we admit the identity of the two birds one great difficulty remains unexplained. Changes of color, in plumage and in bill, present no difficulties, but the tail in *longicaudatus* is markedly longer than in *terricolor*. Our very large series exhibits no indications of there being any general spring moult, on the contrary, the bright rufous tint of the December *longicaudatus* appears to fade during February into the earthy brown of the summer *terricolor*. How then does it happen that the tail of the latter is so much shorter? It appears to me that in April and May the tail alone is moulted. In February and March the tails are mostly abraded so as to have lost all dark or light tippings, though a few specimens retain the rufous *longicaudatus* tail with the dark penultimate bands and pale rufescent tip, the tail contrasting strongly with the earthy brown of the upper surface. This is the case with a female killed on the 12th March at Mogul Serai. In April all the tails are much abraded and have faded almost to the same color as the back, and though in one specimen the tail is still slightly rufescent, not one exhibits either dark spots or pale tippings. In May several specimens have perfectly new unabraded tails, shorter than those of the winter plumage, of a pure pale earthy brown;

all the lateral feathers, with greyish white tips and a penultimate dark bar. In June all the birds appear to have got new tails, but in a good many of these the dark spots on the tail feathers have disappeared, and the lateral ones have become mostly white. No *longicaudatus* tail is then seen until October. In November almost every bird has a new typical *longicaudatus* tail.

It is not, however, all plain sailing as I shall show a little further on, abnormal birds occur which do not conform to these views.

To take my series; there are seven birds killed in May, from Sambhur, Cawnpore, and Dehra Ghazi Khan; these are all pale earthy grey above, below whitish with the faintest yellow tinge, and most of them have, or are getting, new tails of the pale earthy grey type.

In June there are seven birds, from Sambhur and Saugor. Six of these are typical *terricolor* with new tails of the short type, but the seventh is a young bird, very rufescent, of the *longicaudatus* type, and it occurred to me that the young of this species might be rufescent; I have often seen them in the nest, but I cannot myself remember. But Captain Bingham assures me that he has recently continually handled the young of this species, and that they are grey like the old birds, I cannot therefore account for this very rufescent June bird which is clearly a bird of the year.

July, two specimens, one from Jhansie, one the Central Provinces; the Jhansie bird is typical *terricolor*, but the Raipoor bird is a typical adult *longicaudatus*, in what looking to the rest of the specimens I should call the December plumage. I owe this specimen to Mr. F. R. Blewitt, it is dated Doondagurh, Raipooor Dist., 12th July 1874; if no mistake has occurred it certainly presents a considerable difficulty. It is the only clear exception to the view I now adopt, of *longicaudatus* being the winter and *terricolor* the summer plumage, out of one hundred and twenty specimens.

Eight specimens killed in August from Hansi, Agra, Saugor, Jhansi, and Etawah are all in typical *terricolor* plumage.

So also are two specimens killed in September from Dinapore and Mogul Serai.

Of four specimens killed in October, one has nearly moulted into the *longicaudatus* plumage, but is not very rufous, though it has a typical *longicaudatus* tail, another has a new *longicaudatus* tail and is a faded rufous above, in fact it looks to me like a faded edition of the young June bird already mentioned but with a new rufous tail; two specimens are in *terricolor* plumage, but with a slight rusty tinge not observable in any of the specimens of the previous month.

Eighteen specimens killed in November at Deesa, near Shahpoor, Ferozepore, Etawah, Dinapore, Mogul Serai, Chunar, Ghumer, are almost without exception in the typical *longicaudatus* plumage, some of them especially being excessively rufous; with one exception, all have the *longicaudatus* tail either complete or coming. One specimen alone is in the *terricolor* stage, and what is remarkable about this is that it is moulting, and that the new tail that is coming is not a *longicaudatus* tail, but a typical *terricolor* tail. This anomalous bird was shot by Mr. Brooks at Ghumer on the 7th November.

Of twenty-five specimens killed in December at Etawah, Mogul Serai, Dumraon, Kurrachee, Kugilmeanee, Jacobabad, Dhama, Sumbulpore, Boad, all are of the *longicaudatus* type; many are perfectly typical; in a good many the lower surface has begun to pale; in two or three the upper surface has lost much of its rufescent tinge and is scarcely more rufescent though darker than in *terricolor;* in many the tails have become much abraded, and both the rufescent tipping and the black bar or spot of the typical *longicaudatus* tail has more or less disappeared.

Seven specimens killed in January in the Etawah district and the neighbourhood of the Sambhur lake are all clearly referable to *longicaudatus*, but they are decidedly faded, and in several the tails are very much, and in all a good deal, abraded; only one specimen retains traces of the dark penultimate bar and the pale tippings to the tail feathers.

Twenty-one specimens killed in February at Sambhur, Kalpee, Chunar, the Etawah district are with one or two exceptions in an intermediate stage between *longicaudatus* and *terricolor;* the tails are still in every case more rufescent than in the latter stage and no single specimen exhibits the bar or tip, but the under-surfaces of the bodies have in most cases become almost as pale in *terricolor*, and the rufous tinge has in most cases almost disappeared from the upper surface which, though somewhat darker, approximates closely to that of *terricolor*.

Eighteen specimens killed in March and April differ little from the February birds except in that they are, with one exception, still nearer to typical *terricolor*, the tails being still less rufescent than the majority of birds killed in February. The single exception is a nestling obtained by Mr. Brooks, on 27th March 1869, which is certainly somewhat rufescent and which closely resembles the June nestling already referred to.

This review of the series of dated specimens before me seems to me to confirm Mr. Brooks' view, and though I will not pretend to say that all the difficulties of the case have been thoroughly solved, I think we may conclude, that the typical

longicaudatus is the newly moulted November plumage, that from January this begins to fade into the *terricolor* plumage, the tail alone being moulted in May, giving us in June the typical *terricolor* plumage. Before concluding it may be as well to contrast briefly the typical winter and summer plumage.

DRYMOIPUS INORNATUS, *Sykes.*

Winter *(longicaudatus)*.	Summer *(terricolor)*.
Bill, brown, greater part of lower mandible, yellowish horny.	Bill, black, yellowish at extreme base of lower mandible.
Lower surface, warm buff.	Lower surface, white with a faint yellowish tinge.
Upper surface, strongly rufescent.	Upper surface, dull earthy grey brown.
Wings, hair brown, strongly margined with dull ferruginous.	Wings, earthy brown, margined albescent.
Tail, 3·2; rufescent brown, obsoletely barred with darker brown; the lateral feathers paler; all lateral feathers tipped with rufescent white preceded by an imperfect dark bar; central tail feathers, with traces of the same.	Tail, 2·5; central tail feathers pale earthy brown obsoletely barred with a darker shade; lateral tail feathers paling towards the exterior ones which are almost white; all the lateral ones tipped with white preceded by a dark imperfect bar or spot.

A. O. H.

A New Indian Iora.

BY CAPT. G. F. L. MARSHALL, R. E.

Iora nigrolutea *Sp Nov.*

Characters.— ♀ and ♂ juv—Tail with the central feathers grey, the outer feathers black, all broadly edged with white. The edgings of the wing feathers purer white, less strongly tinged with greenish yellow than in *I. typhia;* otherwise in coloring and dimensions similar to *I. typhia.*

In advancing to full plumage the grey of the central tail feathers changes to black in strong contrast with the broad white tips.

♂ adult—Head and nape, jet black, divided from the yellow of the back by a sharp line; upper back, lemon yellow with black tips to the feathers (it is possible that the upper back *may* in fully adult males become entirely black, but no such specimen has been found as yet); lower back, greenish; wings with the primaries, dusky, edged with yellowish white; the rest of

the wing black with white tips to the feathers ; tail, black with a broad white tip which latter may possibly disappear with advancing age, but no proof of this has been discovered ; under parts brilliant yellow lighter and purer than in *I. typhia*.

The main distinguishing feature in this species is the tail, which under no circumstances has any green on it in male or female, young or old.

Habitat.—The dry parts of Western Continental India. The specimens in my own collection were all obtained in the Meerut and Saharunpoor districts, N. W. P., Mr. Hume's collection contains one ♂ from Mount Aboo, five specimens from Sambhur, one from Kutch, one from Agra, one from Jhansi, and six from Etawah.

Before describing this species as new, I had the advantage of going carefully through the large series of *Ioras* in Mr. Hume's museum; and examined them carefully with a view to discover whether any distinctive points could be adduced between *I. zeylonica* and *I. typhia*. The distinctions as given by Jerdon are briefly "*I. typhia* wants the black on the head and back, the bill is slightly longer, and it is altogether a larger bird."

The two latter distinctions will not hold good ; with regard to the first characteristic, the assumption of black on the head and back, it will hold good, *as a rule*, but to it even, there are exceptions. It may be broadly stated that in the South, where the type of *I. zeylonica* prevails, the males almost without exception assume the black plumage on head and back, while in the North the black plumage is assumed very rarely indeed.

It may be convenient under these circumstances to keep the two races specifically distinct ; on this point no doubt opinions will vary.

But whether the two forms *I. typhia* and *I. zeylonica* be united or kept separate, they both equally differ from the new species now described as *I. nigrolutea*, in that in both, the tail of the female and young male is green with or without paler edging ; in both this green changes directly to jet black, and in neither of them does any trace of either white or grey occur on the tail in any stage.

The variation in plumage of the Indian *Ioras* is a matter of so much doubt and interest that I take this opportunity of noting the facts as exhibited in the specimens in this museum* (Mr. Hume's).

Ceylon, a pair ♂ and ♀. In the male the tail is entirely jet black, the green of the upper plumage being largely mixed

* I shall be glad to receive good specimens of *Ioras*, carefully sexed and dated, from all parts of the country.—Ed., S. F.

with black on back and head, but showing no traces of yellow. In the female the tail is green.

Paunben. Two ♂ one ♀. Both males have the head and upper back, jet black with a few traces of yellow on the latter; tail, entirely jet black; wings, entirely jet black, excepting a white spot on the coverts, in the female the tail is green.

Nilgherris. Three ♂ two ♀. In the males the head and back is black, largely mixed with green; the tail is entirely black. In the young males and females the tail is green.

Travancore. Three ♂ one ♀ precisely similar to the Nilgherri specimens.

Wynaad. One ♂ shot from nest entirely green. Two ♂ one ♀ as in Nilgherri birds.

Mysore. Two ♂, one similar to the Nilgherri specimens, the other exhibits traces of yellow on the back.

Madras. One ♂ two ♀, precisely similar to the Nilgherri specimens.

Kandeish. Two ♂ do. do., but with the black more completely developed.

Matteran. One ♂ one ♀ precisely similar to the Nilgherri specimens.

Mahableshwar. One ♂ two ♀. The male exhibits a slight trace of yellow on the back, otherwise both agree with Nilgherri specimens.

Ahmednuggur. One ♂ exhibits decided traces of yellow on the back, otherwise as in Nilgherri specimens.

Central Provinces. Nine ♂ four ♀. The males as in the Ahmednuggur specimen with decided traces of yellow in the black on the back, showing an approximation to the North-West form *I. nigrolutea*, but the young males and females have all the green tail.

Mount Aboo. Two ♂ one ♀ do. do.

Jhansi. Two ♂ three ♀. The only adult male shows strong yellow markings on the back, but the young male and females have green tails. In this district the true *I. nigrolutea* begins to occur.

So far the type of *I. zeylonica* extends, north of this the *I. typhia* type is the prevailing form; out of 3 ♂ from the Kumaon; Bhabar, one ♂ from Dehra Doon, four males from Etawah, one ♂ from Oude, eight ♂ from Meerut, one ♂ from Etawah, three ♂ from Tirhoot, seven ♂ from Calcutta, one ♂ from Dacca, one ♂ from Tipperah, one ♂ from Akyab, in all thirty-one males from Northern and Eastern India, not one has any decided black mixed with the green on the head and upper back.

In the specimens from Burmah, of which there is a large series, an admixture of black with the green is not uncommon,

and in some the black is highly developed, thus the Northern Indian type appears to be distinct, while the Southern Indian type re-appears in the Malayan peninsular.

The most remarkable variation of all is the prevalence of yellow on the back in all the specimens from Central India.

The Laccadives and the West Coast.

It had for years been the cherished dream of my existence (to quote the words of an illustrious visitor to India), to visit and explore those little known reefs and Islands, the Laccadives.

Perhaps I hoped to find there a fauna and flora exhibiting affinities with those of Madagascar and the Seychelles, Mauritius, and Reunion, and to unearth some evidence confirmatory of the hypothesis that the Atolls of the Laccadives, the Maldives, and the Chagos mark the mountain crests of a long submerged land, of which Madagascar and the neighbouring Islands once formed parts.

Certainly (I fear me on the barbarian's principle of holding *omne ignoto pro magnifico*) I expected important results from a trip to the Laccadives, and great was my delight at finding myself during the last days of January 1875 in Bombay, with a cruise along the west coast and a trip to these islands arranged for me.

The "Clyde," an old gun-boat, had been fitted out, after a fashion, for use by the new Indian Marine Survey, and as she had to come round to Calcutta, and as several of the Laccadives were supposed to be anything but accurately placed in the charts, it was determined that on her way to Cape Comorin she should run through the Laccadives and fix accurately the positions of as many as possible of the reefs.

The "Clyde" had been declared ready for sea a week previously by the dockyard authorities. I had been telegraphed for from Calcutta to come at once if I meant to go at all, yet more than a week elapsed after my arrival before it was possible to make a start.

During the interim I knocked about the harbour and islands a good deal.

In the most crowded portions of the harbour and about the rocks immediately below the old fort's low battlements, *Larus brunneicephalus* (associated with a much smaller number of *L. ridibundus*) abounds. They sit about on the water during the greater part of the day, not condescending to move for

passing boats, until almost run over. Hundreds may be seen crowded at midday on the fort rocks as tame and fearless, amidst the surrounding bustle, as the crows in the Bombay highways.

Further out into the harbour, where vessels are scarce and the traffic insignificant, few of these are to be seen, but here during the day, *Larus occidentalis** is comparatively abundant. It is only in the early mornings and towards sunset that this latter species gathers in, in any great numbers, where the shipping is massed. Curiously enough I did not notice one *L. leucophæus*, though it is possible that some of the immature birds belonged to this species.

As one gets out towards the Prongs lighthouse and Colaba Point, terns begin to appear; *Gelochelidon anglicus* is by far the most common of these, but *Sterna bengalensis*, and *Bergii*, also occur, and we saw one *Sylochelidon caspius* conspicuous by its large size and red bill; a species rarely seen so far away from fresh or brackish water. On the rocks we saw a solitary specimen of *Larus Hemprichii*, which I first added to the Indian Avifauna from Kurrachee, and of which Bombay must now be taken as the most easterly point to which it is known to extend.

About the seaward face of Bombay Island, I noticed a few Oyster Catchers, and there were several in Back Bay; all round the Island, and other Islands in the harbour, the Turnstone was pretty abundant.

Every here and there, on rocky points, grey and white reef herons (*D. gularis*) are seen, the white as usual much less numerous.

About the shipping, kites were as numerous, as in the streets of Bombay. In the town I saw nothing but what I call *govinda*, a bird intermediate in size betwen *affinis* and *major*, but in the harbour I saw, and, after some trouble succeeded in shooting, a magnificent specimen† of the latter, and I think I saw one or two more at a distance.

* A nearly adult male *Larus occidentalis*, but still shewing many traces of the immature plumage, measured:—Length, 24; expanse, 57·5; tail from vent, 7; wing, 17; tarsus, 2·9; midtoe and claw, 2·7; bill from gape, 3·1; weight, 2·5 lbs.; irides, pale yellowish brown; bill, pale livid purplish grey, with a broad blackish brown bar towards the tip, and a yellow tinge at gonys; legs and feet, pale livid pinky white; claws, dark brown.

† This bird is not a bit like the "*melanotis*" from China that I have seen. It was a female, length, 26·6; expanse, 65·0; tail from vent, 14·5; wing, 21·0; tarsus, 2·5; bill from gape, 2·0; weight, 2 4 lbs.

The irides were pale brown; the legs and feet, white, with a pale brown tinge: claws, black; cere on culmen, pale yellow, rest of cere, gape, and base of lower mandible, pale blue; rest of bill black.

There is an enormous pure white patch on the under surface of the wing, much as in a Buzzard.

At Elephanta, Trombay, Oorun, and other islands in the harbour, the commonest species appeared to be the Crow-pheasant (*Centrococcyx rufipennis*), the Grey Drongo (*B. longicaudatus**), the White-browed Bush Bulbul (*Ixos luteolus*), the Dial bird or Magpie Robin (*Copsychus saularis*), the Southern Red-whiskered Bulbul (*O. fuscicaudata*), the Amethyst-rumped and Common Purple Honey Suckers (*L. zeylonica* and *A. asiatica*), the common Indian Bee-Eater (*M. viridis*†), the Rosy Pastor (*P. roseus*), the Black-headed Oriole (*O. melanocephalus*), and the White-spotted Fan-tail (*L. pectoralis*‡).

On the island of Elephanta itself we disturbed a large colony of the Night Heron (*N. griseus*§) and shot a few specimens.

February 2nd.—This, the day of our start, was a grand gala day for Bombay. The annual regatta was being held and it would have been impossible to see the harbour to greater advantage.

Close abreast of where we were moored was the old stone battlemented castle, occupying with Bombay itself (which stretches away far north and south of it), the western shore of the harbour. Salsette hill, some 1,000 feet in height, bounds it to the North. The hills of Elephanta (glorious in its stupendous cave temple) and of Carija, wall it in eastwards, while to the S. E. and S., the Quoin and other hills completely close in the view. Embosomed in blue and purple hills fringed everywhere about their bases with bright green lines of man-

* Two females that I shot of this species, both exceedingly fine and typical specimens of the race that occurs in this neighbourhood, measured :—

Length, 11 8, 11·5; expanse, 16; tail from vent, 6 35, 6 2; wing, 5 35, 5 4; tarsus, 0 7, 0 65; bill from gape, 1·1, 1·05; weight, 1·33 oz., 1 5oz.

The bill, legs, and feet, were black; the irides, crimson.

† These are of the western type with comparatively little red or golden about the head and neck. A pair measured :—

Male.—Length, 9 8; to end of ordinary tail feathers only, 7·7; expanse, 12; tail from vent, 5·1; to end of ordinary tail feathers only, 3; wing, 3 7; tarsus, 0·33; bill from gape, 1·55. Bill, black; irides, crimson; legs and feet, deep brown; edges of scutæ and soles, hoary.

Female.—Length, 9·25; to end of ordinary tail feathers only, 7·5; expanse, 11 5; tail from vent, 4 75; to end of ordinary tail feathers only, 2·9, wing, 3 6; tarsus, 0 4; bill from gape, 1·45.

‡ A pair of this species measured :—

Male.—Length, 7 5; expanse, 9 0; tail from vent, 3·9; wing, 3; tarsus, 0 8; bill from gape, 0 6.

Female.—Length, 7; expanse, 8·4; tail from vent, 3 3; wing, 2·8; tarsus, 0·75; bill from gape, 0 53.

The bill, legs and feet were black; the inside of mouth fleshy white.

§ *A fine male of this species measured*.—Length, 2 4 5; expanse, 39·5; tail from vent, 4·3; wing, 10·9; tarsus, 3; bill from gape, 4 25; weight, 1·5lbs. It was killed on the 29th of January. The colors of the soft parts were then as follows:—Toes, pale yellow; legs and feet, pale greenish yellow; orbital space, lores, gape and base of lower mandible, pale hoary yellowish green; upper mandible (except a stripe parallel to commissure which is greenish horny) deep brown; medial portion of lower mandible, except the commissure, pale greenish horny; terminal portion and commissure, dark brown; extreme tip, whitish; irides, crimson.

groves or palms, the harbour with its wide expanse of blue green, sand-laden water, glittering in the tropical noontide's glare, looks like some vast inland lake.

The ships are all dressed with multitudinous rainbow-hued lines of flags. The water is everywhere alive with a heterogenous mass of boats and vessels; group after group of these suddenly spread their wings, and dash off before the free breeze, in quick succession as the starting guns are fired at short intervals. Every boat seems to have its own special and peculiar rig and to have its own private view of how the course may best be run. The numbers of gulls dotted about the water, floating quietly in little parties, their wings well peaked astern, or flapping lazily about, seem scarcely less animated by any common purpose than do the several competitors for the various races that are now being sailed.

Some distance east of us lie the clumsy monitors, the Magdala and Abyssinia in their dirty buff livery, veritable leviathans of the wave, while between them a troop of the tiniest and most fairy-like skiffs scud away on white latteen sails, for all the world like a flock of terns about a couple of dead whales.

The rowing matches have commenced, and party after party of four and six oars, spurt away across our bows, propelled by stalwart European, French, English, and nondescript, arms.

The Daphne gun boat there, has contributed some crews, and so has the grey blue French frigate yonder, but the mass of the row boats are furnished by the merchant shipping of every nationality which literally throngs the harbour.

All the while steam launches flaunting the red English flag, or the blue naval reserve are dashing hither and thither, whistling and screaming and then puffing and blowing as if quite exhausted by their exertions.

A man-of-war's boat passes under our stern with the rapid clock work navy stroke. Just ahead a huge lumbering Pattimar, with enormous latteen sails, sweeps by us with the steady rush of a Griffon.

A band strikes up on board the starters' vessel, and, mellowed by the distance, an old sweet refrain, comes floating across the water to us.

Blue cloudless skies; a glorious cincture of many-hued hills; the green glittering water, crowded with boats and ships of every conceivable shape and size and colour; alive with rapid motion, and bustling craft; fluttering flags and swooping sea-birds; lines of white foam along the rocks, and long rows of sparkling crests, where the fresh breeze begins every where to furrow the expanse, while it softens and adds a charm and

freshness to everything from the golden sunlight to the silver song of home it wafts to us.

Healthful enjoyment seems to irradiate the whole scene, but we cannot quite forget that within gun shot of all this foaming life, in a darkened chamber hanging between life and death lies the master spirit, who for the past quarter of a century, has well and wisely ruled and curbed the turbulent and warlike Nepalese. He was to have sailed for Europe yesterday; the previous evening mounting a borrowed Arab, he was thrown, and he still remains insensible. What his fate* may be it will be long before we learn, our anchor is up, and we can only leave behind us our heartiest and most cordial wishes for his recovery.

Our anchor is up—but somehow we are not moving—the screw declines it would appear to revolve. At last, however, we begin to creep ahead very slowly and hesitatingly—after nearly an hour's hard work with crow bars, the engines have consented to move very slowly. Now they stop, now they are encouraged with a few vigorous pokes with a crow bar and go off 100 revolutions of the screw to the minute, for two minutes, and then gradually slacken and slacken, coming to a dead stop in the midst of the most crowded part of the harbour and exactly to windward of the Regatta grand stand boat. In vain now are the crow bars plied, the screw is jambed hard and fast—the brilliant beings who carry on the Dockyard operations have, it would seem, let an *unseasoned* block of lignum-vitæ, into the stern post for the screw shaft to revolve through, and this block has swelled so that it is doubtful whether we shall ever get the shaft to move again.

Now the "Clyde" is one of the old gun boats, specially intended for river work, no keel, very shallow draught, very heavily built, a poor sailor off a wind and quite helpless on a wind, going to leeward quite as fast as she forges ahead, so that being admittedly a sailing vessel that won't sail, it will, to say the least, be rather awkward if she also turns out a steamer, that won't steam.

Meanwhile we are drifting, threatening to drift on to a mass of boats crowded with sightseers, nay on to the grand stand itself, and are hopelessly perplexing the numerous racing boats, now just coming in to the winning post. We become aware of remonstrances and reproaches, addressed to us from various quarters in naval phraseology—our intellectual capacity is rudely questioned, our optics become the subject of uncharitable denunciations. Our sails are being set, but chains are rusty,

* Jung Bahádur, as we long subsequently learned, soon recovered sufficiently to leave Bombay, but he abandoned his proposed trip to Europe.

blocks stiff, our topsails refuse to be hoisted and hang in bags; the wind too, is too far ahead to suit this slow lubberly old "Crawlin Camel" and as the uproar around us, indicative of the strong feeling of dissatisfaction which we are unhappily exciting increases momentarily, I feel as if all the light had faded out of the charming vision, on which I had so long feasted my hopes.

At last, when all hope seemed over, and a trial for manslaughter on a large scale seemed to close the entire vista of our future, when an indignant public was compelled to silence by the necessity of providing for their immediate safety and a general *sauve qui peut* seemed imminent, off go the engines again suddenly, 16 to the dozen, and off we go at least 4 knots an hour, and though we don't keep *that* up, we do actually, between sails and screw steadily forge ahead at the rate of about 3 knots, to the intense mutual relief of ourselves and a much exercised public.

Throughout this trying scene, our captain, (Staff Commander——R. N.) preserved the most imperturbable serenity, neither depressed when we threatened destruction to aquatic Bombay, nor unduly exalted when the engines incontinently resumed work—but when we were once fairly out of the crowd, a grim smile flickered over his honest features—he seemed to take in the whole of the old Clyde, stock and block, with one comprehensive glance, and then as if this was too much for him, he gave vent to his feelings in the one touching remark, "nice old girl, ain't she?"

Thank heaven! we are at last out opposite the inner light and steering straight for Khundari. Three fine adult *Larus occidentalis* in our wake "und weiter nichts."

February 3rd.—About 9 A.M. we were opposite Severndroog, having, by help of sails and steaming full power, made actually nearly 4½ knots per hour throughout the night. No doubt the water had been perfectly smooth and the wind fair, but for this precious tub this was no little achievement and so my spirits began to revive.

Throughout the day we have run down the coast under canvas only, at a distance of from 3 to 4 miles off shore, but we have seen no birds except a solitary *L. ridibundus* that looked us up about 11·30 A. M. and then passed on, and a single *L. occidentalis*, that joined us for about an hour during the afternoon. By 8 P.M. we were off Rutnagheri.

February 4th.—Early in the morning we sighted the Vingorla Rocks, some miles ahead, and ran down towards them past Sindeedroog. When nearing the rocks it was thought that a little steam would be useful, and as fires were banked, the order was

passed; steam was soon up, but it was nearly 2 hours more before our chief engineer aided by nine strong men and 3 enormous crowbars, succeeded in persuading the screw to revolve. At last, just when we were close on the rocks, off went the engines with a rush, we ran through the channel and were just coming round to our proposed anchorage when crack went something, and the engines came to dead stop. It appeared that the condensers air pump shaft had snapped in two, that there was no duplicate on board, and that the broken shaft could not be mended except in a dockyard. Further that as *with* the condenser and a pressure of 42 lbs. the engines could hardly be moved, and as *without* the condenser, the boilers will only work up to 30 lbs., we may henceforth give up all idea of further utilizing our engines during the present trip. A cheerful prospect truly, considering the remarkable sailing capacities of the "Clyde."

There was a slight sea on, but we soon had out a good cutter and started for the rocks. These consist of three outer and comparatively large ones, on the outermost of which is placed a light house (distant about 4 miles from the nearest point of the mainland,) and a vast number of minor rocks running in a more or less broken line towards the coast. This line lies nearly north and south, and extends, northwards from the lighthouse, some nine miles to Sindeedroog or thereabouts. Through this line there is in one place a broad channel, about 2¾ miles from the shore, through which we came, and on a rock on the edge of which the "Chaldea" was wrecked last year.

The three large rocks, or rocky islands, are entirely metamorphic, and are composed of numerous varieties of quartzo-micaceous rock, mostly more or less ferruginous, and in many places a good deal decomposed and broken up.

The rocks are quite bare, but the crevices everywhere, and some few smooth places near their summits, (the highest is fully 140 feet high), were filled and covered with quantities of a coarse tangled jointed grass, a species of *Cymbopogon*, which, with the exception of a few tufts of the Silver-scaled Amaranth (*Celosia argentea, L.*) and a trailing Clove-wort (*Mollugo spergula, L.*), constitutes their sole vegetation.

The largest of the three is pierced from side to side by a huge tunnel-like cave, and about the middle of the island a shaft has broken down into this owing to the falling in of the roof. This cave is tenanted by numbers of Blue-rock Pigeons (*C. intermedia*), which gave us rather pretty shooting, the birds flashing out from the ends of the cave in rapid succession, when Rocks were thrown in through the shaft. Unfortunately the birds were easier to shoot than to retrieve, and whilst one that dropped a little distance

out to sea, was struggling and flapping on the water, down came a magnificent White-bellied Sea Eagle (*C. leucogaster*) from somewhere over our heads, hurtling like a thunderbolt straight on to the quarry, and a minute later was sailing leisurely away shorewards with the Pigeon in his claws, doubtless to feed its young.

Besides the Pigeons we found two or three Blue Rock Thrushes (*Cyanocincla cyana*) and a pair of common Kestrels, but though we remained several hours on the rocks and explored them thoroughly, we saw nothing else either on land or at sea.

Dr. Jerdon tells us (I. p. 183) that the Indian Edible-nest Swiftlet (*Collocalia unicolor*, Jerd.) breeds upon these rocks. Not one bird of this species was, however, visible, nor were there any traces of nests in the great cave, the only one we could find, and either the birds have deserted the locality or they only visit it during the breeding season, later in the year.

Deserted, however, as these rocks now are, there must be a time when the largest of them, surnamed Burnt Island (and on which curiously enough we found much of the grass burnt), teems with bird life. Everywhere in the crevices and amidst the tangled grass, we found innumerable addled, broken and more or less decayed Terns' eggs, while all about in similar situations, Mummies, dessicated corpses, of young birds of all ages and of a few old *Sterna anosthætus* lay scattered, leaving no possibility of doubt as to the species which chiefly breeds there.

But besides the *anosthætus* eggs, we also found in one place a few very much larger eggs, too decayed for preservation, but still showing sufficient of the characteristic markings to leave no doubt as to their pertaining to some one of the larger Laridæ.

The rocks were everywhere thickly crusted for about 3 feet downwards from high water mark, with small *Ostrea's* apparently all dead, and on these were everywhere scampering multitudes of two species of variegated reef crabs (*Grapsus strigosus* and *pictus*), that innumerable and fearless as they seemed, proved by no means so easy to capture as might have been expected.

Outside, and around the main rocks, on which, by the way the landing is somewhat difficult, stand many bold stacks of rock, round, and high over, which the surf was boiling and spouting. Even for a well-manned cutter the navigation is not easy if only a little sea is on, and it must be very rarely that during the monsoon, when, as I believe, *anosthætus* breeds, a landing can be effected on Burnt Island.

No coral is any where observable about these rocks, though they are situated in only 16° N. latitude.

February 5th.—During the night we ran down past Goa, and about 6 A.M. were off St. George's Island, but the wind failed

us entirely when we were still some 6 or 7 miles distant, and we had a long hot row to land in the cutter.

The Island consists of a conical hill to the west, about a quarter of a mile in diameter, and a long narrow rocky island running east and west connected with the hill by lines of rocks, mostly submerged at high water. The hill is about 250 feet in height, and this also is about the height of the highest portions of the long island. At the extreme, or eastern end of the latter, the seaward slope is clad with dense tropical jungle, in which canes and screw palms are conspicuous, but the major portion of the island or islands is too much exposed to the violence of the monsoons, and is mainly covered by dense tangled trailing grass, dotted about with stunted *Ixora* bushes (*I. coccinea*, L.) radiant with their large red corymbs, or the shining oval-leaved, white-flowered Caper (*C. Roxburghii* D. C.) so common in Southern India and Ceylon.

On the long island we found a couple of fishing huts and a small colony of fishermen, the neighbourhood of whose premises was sadly redolent with a complication of bad smells resulting partly from a multitude of strips and steaks of Dog-fish, Shark, and Skate, which were drying in the sun, and partly from a flagrant disregard of sanitation generally. We could not learn from these people that there were ever many birds about the place either on land or sea. Certainly, we saw neither Gull nor Tern, and on land all we noticed after several hours laborious exploration were a flock of blue Rock Pigeons, a fine pair of White-bellied Sea Eagles, a colony of Night Herons, a few Southern Red Whiskered Bulbuls (*O. fuscicaudata*), White-spotted Fantails (*L. pectoralis*, Jerd.), some blue Rock Thrushes (*C. cyana*), and several Blue Reef Herons (*D. gularis.*)

The day was superb. The rock and sea scenery fine, but ornithologically, St. Georges, like Vingorla, was a failure. Here too there was a fine cave, but no sign of any *Collocalia.*

My impression is that the rock was everywhere igneous, with here and there conspicuous quartz dykes, but I forgot to note it at the time. I searched the shores for coral, but found none, and saw nothing there but the usual troops of variegated crabs, of the same species as we obtained on the Vingorla rocks.

February 7th.—We got to Pigeon Island about 10 A.M., having drifted slowly down the coast, the engines doing about one knot, and the light breeze, about another, per hour. The island, small and high, say not less than 350 feet at its highest point, is composed of laterite; it rises more or less precipitously on all sides out of rapidly deepening water; the cliffs are succeeded by steep slopes densely clad with tangled and now withered grass, and the highest portions are thickly set with low tree

jungle here and there interspersed with a few large Cotton and Terminalia trees.

On the rocks at the base of the cliffs were huge water-worn fragments of *Porites*, *Madrepora* and other reef corals, but I could discover none *in situ*, though some there must be some where near, as masses, such as we saw, could not have been moved across deep water.

Climbing up the steep sides, the moment we reached the trees, the Asokh (*Saraca indica*, L.; *Jonesia asoka*, Roxb.) with its innumerable bunches of fiery orange coloured flowers, attracted the eye. I have often seen this tree in flower elsewhere, but never bearing anything like the same mass of blossom; the whole copse seemed in some places ablaze with it. Beneath the trees a green and many fingered fern (*Acrostichum virens*, *var terminans*, Wall.) crept and trailed, while high up the bright baybrown fronds of the Oak-leaf fern (*Polypodium quercifolium*, L.) rigid and glistening, formed coronet-like tufts.

A huge cotton tree, bearing a huge stick nest, drew me to its buttressed base. The nest was tenantless, but on one great bare arm composedly gazing far over the blue waves beneath, sat a grand old Sea Eagle. In the full glare of the noontide sun, his snowy breast shone out with dazzling brightness. The delicate pearly grey of back and wings glistened with an almost silvery sheen. There was an indescribable something in his firm, erect, attitude conveying a sense of majesty and power; he seemed so strong and bold and beautiful, that I had not the heart to shoot him, and then, presto, whether he caught sight of me or whether it was something below that attracted him, I cannot say, but he leant forward, half opened his wings and shot downwards like an arrow, and in a second, was hidden from me by the tops of trees that grew below.

However, I had come to Pigeon Island, specially to secure a really good series of this Eagle, which though, everywhere seen, is ever hard to procure, and during the two days I remained here, I procured some fifteen splendid specimens.

Each of the very large trees on the island, (perhaps 35 in number,) bore one great stick nest; on two trees only I observed a couple of nests. The majority of the nests were empty—the birds probably laying towards the close of December—but in three nests, I found young ones, a pair in each, just ready, but not quite able to fly—of these I preserved one.* Two others, I shot, very similar in plumage, but flying strong and well. Others, again, just a year older, and numerous perfect adults.

* See for description, *infra* p. 461.

The White-bellied Sea Eagle is very voracious, and during the morning I watched them incessantly returning to one or other of the big trees, bearing sea snakes, 5 to 6 feet in length, in their claws, which they there devoured at their ease. Once or twice I saw them eating something on the rocks, but, as a rule, they always returned with their prey to some great bare sea o'ergazing limb of one of the giant trees.

One that I shot as he swept over head high above the stunted trees that concealed me (for after a few shots they became wary enough) had in his claws the entire liver and stomach of a goat. Had he found it floating at sea? Had he brought it as an especial delicacy all the long miles from the coast? Certainly nothing of the kind was to be obtained on the island, which is entirely uninhabited, and where not the smallest Mammal was observed by any one.

It is a fine sight to see these eagles striking one after the other in rapid succession. Soaring far far above the highest tree in the island, often I should judge from a height of at least 1,000 feet, they come down with nearly closed wings, and with a rushing roar, like that of a cannon ball, in a perfectly direct line, making an angle of about 60° with the water, which they scarcely seem to reach before they are again mounting with heavy flaps and with a yard or two of snake hanging *dead* in their talons.

One snake I recovered, shooting its captor, less than a minute after it had been seized. It was stone dead (though we all know how tenaceous of life, these reptiles are) and had its head and neck pierced through in several places by the eagle's cruel claws, its whole skull being completely crushed up.

It is easy to see what these birds chiefly prey on, and where they mostly take their meals, for the ground below the nest trees is often thickly strewed with the vertebræ of snakes of which we found innumerable pieces from 6 inches to even 2 feet in length.

There were a few fish bones, a sheep's head, or at least part of it, and one upper carpace of a tiny turtle, but it was the remains of sea snakes that chiefly composed *their* kitchen-middens.

As to other birds there were scarcely any to record; about the base of the cliffs nestling in caves, one of which at any rate is of considerable size, were numerous Blue Rock Pigeons, —but these never appeared to visit the upper portions of the island, and seemed, from what I observed, to proceed daily to the Mainland, to feed, returning about 4 P.M. I may notice that all the many Pigeons which I shot here, on the Vingorla Rocks,

and at St. George's Island, are typical* *intermedia*, very dark in general colour, and with conspicuous slatey rumps.

Nowhere was a single *Collocalia* to be seen. In the Upper Wooded portions of the island the Black-naped Azure Fly-catcher (*M. azurea*), the Indian White-Eyed Tit (*T. palpebrosa*), the Indian Oriole (*O. kundoo*), and the Indian Koil (*E. honorata*), were tolerably common, and we also shot a single Malabar Green Pigeon (*O. malabaricus*), but beyond these, the eagles and the Blue Rocks, not a single bird was seen. There were no Crows, no Kites, no Mainahs, probably because the 90 or 100 odd Eagles that inhabit the island, make it too hot for these smaller robbers.

I believe that no other similar breeding place of this Sea Eagle is known to exist, at any rate, within the limits of the *British* Empire in Asia—I know now of a great many localities where one or even two pairs have for years nested, but this is the only large Colony of which I have ever heard.

It is not difficult to understand why this island should have attracted these birds. It is in the midst of deep sea, literally swarming with sea snakes; it is miles away from land, and there being nothing there to attract visitors, neither cocoanuts, nor birds' nests, nor turtles, nor sea birds' eggs, and it being, even in fine weather, rather difficult to land on, no one I believe *ever* visits it. It is high and perpendicular sided, and bears on its summit huge trees suitable alike for nesting purposes, and as watch-towers, from which prey can be watched for and pounced down upon. If only a single pair settled there, at first, advantages like these, perfect safety and an abundant supply of food would necessarily lead to the establishment of a growing Colony, the growth of which might only be limited by the supply of food. I procured some 15 specimens, and I killed 6 or 7 more which fell down into inaccessible portions of the cliffs, and I left, as far as I could judge, from 70 to 80 birds, old and young, on the island. If some one re-visits the island a few years hence, it will be interesting to ascertain whether the colony, which when we

* Lord Walden recently remarked: "Mr. Hume speaks of typical *Turtur tigrina* from Sumatra. As the species was not described from a Sumatran individual, it is difficult to gather what is meant by the expression typical." By typical I desire to signify an example exhibiting in their highest development, the peculiar characteristics of the species. *Columba intermedia* was certainly not described from a West Coast Island individual, yet amongst a very large series obtained in all parts of the Empire, the Pigeons of these islands are amongst the most typical, *i. e.*, have the characters by which *intermedia* differs from *livia* most pronounced. So too of all the specimens of *tigrina* that I have seen from Burmah and Malayana, those from Sumatra, are amongst those that exhibit in the most marked degree those peculiarities which constitute the specific difference between *suratensis* and *tigrina*, and therefore I call them typical. But *chacun selon son goût.*

landed must have comprised nearly 100 birds of all ages, has increased or diminished.

On the day of our arrival as we were rowing round the island, an enormous whale, a fin-back (probably *Balænoptera indica*, Blyth) joined us and seemed very anxious to cultivate our acquaintance.

I observed it very carefully as it persisted in keeping abreast of us at a distance of from 50 to 70 yards, and am confident that it exceeded 100 feet in length. I never saw such a gigantic creature. It swam sometimes very high, with half its head, nearly half its body and part of its tail above water, and then again it would swim for a time with only the back fin showing.

Suddenly it disappeared, and two minutes afterwards came up on the other side of us. We were in very deep water, scarcely 200 yards from the shore no doubt, but this was densely fringed with jagged rocks on which, comparatively calm as the sea was, a furious surf was boiling, and besides, there were plenty of sharks knocking about, and we had several guns, a chronometer and other valuables with us which it would be impossible to save even if we, ourselves, could all effect a safe landing. It was, therefore, with no responsive feelings, that we marked our Bemoth's persistent advances; peaceful he doubtless was, and friendly his intentions, but we well knew the innocent fancy that at times seizes even well conducted whales, for scratching their remora and barnacle studded backs against the bottoms of ships and boats, and should our amiable monster thus allow his feelings to get the better of his natural timidity, where should we be? Any reader who has never been similarly situated may laugh, but I can assure him that for the ten minutes or so that our uninvited companion stuck to us, we all felt the reverse of comfortable. At last to our inexpressible relief when we had completely rounded the western end of the island, Bemoth dived and finally quitted *us*. Later in the afternoon, however, he paid the "Clyde" a visit swimming round and round her several times, ("very like a whale" perhaps he thought her) and next morning looking down from the cliffs I watched him for nearly an hour, lazily gambolling in the deep water, where he had joined us on the previous day.

I have forgotten to note that although the whole of the island itself seemed to be composed of laterite, some of the exterior outlying rocks appeared to consist of some kind of granite, but they were so enveloped in surf that it was impossible to get at them to procure specimens.

February 9th.—Last evening we left Pigeon Island and set sail for Cherbaniani reef, the most northerly of the Laccadive group. There are large banks, the Cora-divh, Sesostris and

Bassas de Pedro (and probably others yet undiscovered,) extending far to the northward of Cherbaniani, but as none of these carry any where less than 10 fathoms over them, their inspection did not fall within our instructions.

One object that I had in view in making this trip was to ascertain whether or no the Laccadives were separated by a deep trough from India—a matter which up to this time had remained uncertain.

I had, therefore, indented on the Bombay dockyard for deep sea line, and they supplied some five or six thousand fathoms of splendid looking line. Our Captain, an old Porcupine man, entered most cordially unto my views, and soon after we left Bombay, took the line in hand and began testing and marking it To our dismay it soon appeared that the line was in many places rotten. Whilst we lay at Pigeon Island, the Captain had a lot of it carefully picked over, all bad pieces picked out and the good carefully spliced together. By noon we had run down to Lat. 13·20 N. and Long. 73·17 E. en-route to Cherbaniani, which then remained about 100 miles distant. We hove to, to get a sounding; the Captain got 520 fathoms of the picked line, wound on a large hand-winch which he fixed in the stern of our large cutter, at the bows of which he rigged up a rough derrick and let out the line with a 30lb lead. No bottom was found; more line was picked over and spliced and at 4 P.M., when in N. Lat. 13·70 and E. Long. 73·10·30, we again tried, but our whole line 920 fathoms was run out without finding bottom, the line being well up and down, and the armature of the lead coming up as clean as it went down.

The accompanying sketch map shows the position in which these soundings were taken, as also that of the various islands of the group, and our track amongst them.

Whilst we were hove to the first time, a Bo'sun' came, in the usual inquisitive fashion of these birds, to see what we were up to, and poor fellow, as is not uncommon, paid a heavy penalty for not minding his own business. About 4 P. M. another came up and poked about above the mast heads for a few minutes, but somehow I missed him, though I had several (no doubt long) shots, and he sailed away and began fishing very composedly about 300 yards off, dropping into the water like a King-fisher, and hovering for a time before making a plunge much as this latter bird does.

February 10th.—We hove to for the night to try and get another cast of the lead, and all hands were hard at work under the Captain's personal supervision, in stretching, testing and cutting out all bad and doubtful portions of the line, so that by noon we had altogether nearly 3,000 fathoms on our winch.

By this time, however, unfortunately we had drifted to N. Lat. 12°47′20′ and E. Long. 72°47′30″, not more than 6 or 7 miles from the edge of the Padria Bank (Bassas de Pedro, or Mungul Par, as it is sometimes called). We had no steam, the wind was N. by E. and the old "Clyde" would not work any thing above due east and we were afraid of getting too far south to strike Cherbaniani so we were fain take a sounding where we were, and, as might have been expected so close to the bank, found bottom at only 546 fathoms.

During the day three more Bo'sun's visited us. All these birds, were *Phæton ætherius*, or at any rate the species that we thus identify, and which is certainly not either *flavirostris* or *rubricauda*. All of the same type, glossy, white, black-spotted birds, with short tails, the central tail feathers in no case projecting more than 6 to 8 inches beyond the laterals. It will be said that these are young birds. But I have myself now shot and preserved more than a dozen specimens in the Gulf of Oman and the Indian Ocean, and I have seen at least 50 others hovering about vessels in which I have been, yet never have I chanced to see a single really long-tailed bird, such as Schlegel and Brandt describe. My impression is that the Phæton of the Red Sea, Indian Ocean, the Gulf of Oman and Persian Gulf, will prove to be distinct from *ætherius* of the Atlantic. It is certainly smaller in all its dimensions, as I shall show when dealing separately with the several species of birds met with at the Laccadives.

February 11th.—During the night we had run down to Cherbaniani reef and in the early morning another Phæton called on us, and received a hint to bide with us a wee.

The next event was the discovery that, as if to make the cruise in this miserable old tub more pleasant, small-pox has broken out amongst the crew. In one case it is unmistakeable, in another it is probable.

We have no other means of segregating the sick, and so have had hammocks slung for them on our small quarter deck.

Cherbaniani is a long oval atoll, about 6 miles by 2¼ in its extreme dimensions. It is perfectly typical. There is the reef itself an almost perfectly unbroken line some 200 yards in width, just submerged at high, and more or less dry, at low water. In two places on the eastern, and one on the western side, narrow shallow natural channels exist through the reef, which admit the entrance of boats not drawing more than 3 feet. In three places, one at the extreme northern extremity, one towards the southern, and one about the middle of the eastern side, the winds and waves have piled up masses of coral

debris on the reef so as to form small islands always above high water mark. Inside the reef is a shallow lake-like basin, 2 or 3 feet in depth towards the sides, deepening in one place about the centre of the broadest portion to over 20 feet, but averaging about 6 feet down the centre. Outside the reef there is a somewhat sloping bank extending in some places less than 100 yards, in others a quarter and half a mile and at the extreme south-west corner for three-fourths of a mile to seaward. On this bank the water gradually deepens, there is everywhere from 1 to 2 fathoms close to the reef; where the bank is narrow, there may be 5 or 6 fathoms just at its margin, whereas in its broadest places, there are nearly 20 fathoms at its edge. Everywhere immediately you pass the edge of the bank, there is a tremendous perpendicular fall, and, as we found, no bottom at 200 to 250 fathoms close outside the bank.

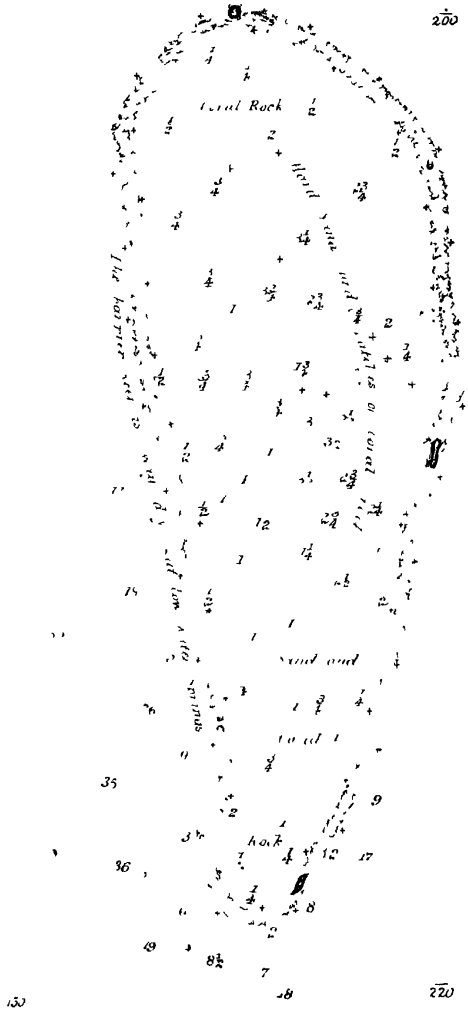
The accompanying plan will give a correct idea of the reef. The soundings recorded are in fathoms and fractions of fathoms, and the three black spots on the reef indicate the little islets.

The shelving bank, above referred to, consists everywhere, so far as I could test it, of dead reef coral, bearing on its upper surface branched corals, also dead, and much choked up with coral sand. We dragged up with a grapnel, in about 12 fathoms water, a large piece of a solid Astrea; this was broken away from the solid reef, the flukes having lodged in a crevice, and had clearly been *in situ*, but it was quite dead, as was also every piece of coral of every description that we obtained anywhere from, or on, the outside bank. At the edge of the reef, not far from where we were anchored, we brought up a large piece of slender branching coral from about 18 fathoms. This also was quite dead, but it had clearly been growing where we found it.

The conclusion I came to was that, subsequent to the growth of this reef, there must have been a considerable depression of the foundation sufficient to kill all the coral. This is what has happened in the case of the great Bassas de Pedro—which is a great dead coral reef from 20 to 40 fathoms below the surface. But then in the case of Cherbaniani, there has been a re-elevation sufficient to bring the reef up to something near its former elevation.

Inside, the lagoon is floored with snowy white coral sand, the shallower portions of the basin towards the sides being thickly studded with masses of branching corals, one and all, as far as I could see, dead and greatly choked up with coral sand.

The appearance of an atoll like this is very striking; in its more or less concentric rings of different colours, it reminds one something of the eyes of a peacock's tail. Nothing else



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can adequately convey an idea of the brightness of the tints that are blended to form one of these real ocean gems.

First, there is the central portion of the lagoon, an exquisite chrysophrase green, then a broad zone of this color, dotted and freckled with olive green, then the reef itself, a deep olive brown, interspersed with little patches of dark green, and everywhere frosted with the snowy curls of the breakers, then a narrower or wider belt of bright apple green, and beyond, the deep purple of the open sea.

We remained three days at this reef, as its position had to be accurately observed, and during this time I circumnavigated it and went all about it.

There is not the smallest trace of vegetation on any one of the tiny islets, the largest of which, that on the northern extremity of the reef, is only about 200 yards long, by perhaps 50 yards in breadth. Its highest point may be about 7 feet above high water level.

About the reef we saw a solitary Booby (*S. fiber*), numerous Turnstones (*S. interpres*), and great numbers of Noddys and Terns, *Sternula minuta*, *Sterna Bergii*, *S. bengalensis*; *S. albigena*, *S. fuliginosa*, *S. anosthætus*, and *Anous stolidus*, and secured many specimens, but what interested me most was to find, on the northern islet, both the Noddy and *S. fuliginosa* breeding.

The moment we set foot on the island we were positively mobbed by tens of thousands of these birds; crowds of other Terns, especially of *anosthætus*, were sitting about the place when we arrived, but these all took themselves off to one of the other islets and left us to settle matters with the Noddies and Sooty Terns.

We found that the latter had nearly finished breeding; with all our care we could only find some 30 of their eggs, and all so hard set, that I only succeeded in preserving 23 of them after a hard day's work. On the other hand, the reef swarmed with the young ones, that ran about chirping between one's legs in such wise that it was difficult to avoid treading on them. They were very tame and fearless, most comical and yet sensible looking little fellows. We put about a dozen in a carpet bag, and took them on board, meaning to rear them, but, though quite reconciled to their new position, only now and then uttering a little chirping cry, doubtless of astonishment, at their parent's neglect, they would neither eat nor drink anything we could give them, so, after keeping them 36 hours, and selecting three which we killed for specimens, we took the rest back, and let them loose again on their minute spot of native soil. In less than three minutes, amidst the pattering uproar of thousands of pairs of wings and through the haze of the dense flock of birds

with which we were encompassed, the parents of every one of the "lost children" had found them out, and were busy feeding and caressing them.

I have no doubt these parents gave them the true prodigals welcome home, and will rejoice more over these lost chicks, than over all former offspring, but if those young Sootys are ever rash enough to recount their very strange experiences on board-ship, what they saw, and what they underwent, I fear the rest of the community will set them down as hardened deviators from the paths of veracity and cheerfully predicate for them an unpleasant fate.

As for the Noddies, these unfortunately were only beginning to lay; we found eight of their eggs, all quite fresh and never more than one in the same place, whereas of the Sooty Tern we found 2 and 3 together.

There was no nest or attempt at a nest in any case. The eggs were just laid about promiscuously in any slight depression, either on the bare coral blocks or on the coarse coral sand between them. There was no separation between the two species, and each egg or pair of eggs had to be watched until the parent settled down to it in order to make sure to which they pertained, for the eggs laid by both are too similar to permit of their being otherwise certainly separated.

Both *fuliginosa* and *stolidus* were in full breeding plumage. *Anosthætus* and *Bergii*, on the other hand, were still in winter plumage, and on dissection showed no signs of breeding. The former, as I have already noticed, breeds probably during the monsoon on the Vingorla Rocks amongst other places, and Bergii, as we found later, breeds probably on Pere Mullpar and certainly on Astolah, an Island off the Mekran Coast, at the end of May and early in June.

I ought to note, that on our last visit to north island, we discovered why the young "sweeps," (as the juvenile Sooty Terns were disrespectfully designated on board) would have none of the fish, flesh or fowl, which we tendered for their consideration; the parents we found were feeding them exclusively on small Cephalapods (*Sepiolas.*)

February 14th.—Last night we left Cherbaniani, for Bitra-par, which we sighted about 11 A. M. We did not take Chereapani en-route as according to the charts, and it has been regularly surveyed there is no spot on the reef not submerged at high water. But information subsequently received from some of the islanders at Amini leads me to believe that this is a mistake, and that this reef is even more frequented by sea birds than either Cherbaniani, or Pere Mullpar.

We anchored just off Betrapar about, 2 P.M. Betrapar is a small uninhabited island, nowhere more than 9 or 10 feet above high water level, about half-a-mile long, and perhaps a quarter of a mile in width at the broadest point, occupying the north-east corner of a large very regular oval atoll, some 7 to 8 miles in length, and 4 to 5 broad in its broadest part. The island is the only part of the atoll above water at high tide, but the edge of the reef is well marked by high breakers all round, and the reef itself is more or less bare at low water, almost throughout its entire length, except for about three-fourths of a mile on its eastern side, immediately south of the island where we found from 1 to 2 fathoms over the edge when the rest of the reef was uncovered.

The Lagoon is very shallow at the northern end, and all along its western side, but throughout the middle and eastern half, carries from 3 to 6 fathoms, so dotted about, however, with coral reefs and shoals (here also mostly, but not by any means universally dead) rising to within from 3 to 6 feet of high water level, that I found it no easy task to steer the steam launch amongst them at half tide. Of course, except where these reefs and shoals occur, the bottom is all fine white coral sand, and the water exhibits that peculiar and lovely aqua-marine tint already alluded to, a colour that "never was on sea or land" save only in gems and in these coral atolls.

The island itself is not composed of mere blocks of water-worn coral piled up by wind and waves, but of a compact indurated lime-stone, undoubtedly the finely triturated debris of the reef cemented together by continual wetting, partial dissolution and re-deposit. It contains a larger proportion of organic matter,* however, I think, than is usual in the case of such air formations.

When it was formed the reef can hardly have been in its present condition. I could nowhere detect the usual beach slope—on the contrary there was in some places a distinct dip towards the interior of the island.

* The following is the report of the Geological Survey Department, to which I submitted specimens:—

"*Betra-Par, Laccadives.*

This peculiar rock is almost entirely a pure carbonate of lime, with only a trace of carbonate of magnesia, but it contains 2·33 of organic matter.

The composition of the mass is,	
Carbonate of Lime, and a trace of Carbonate of Magnesia	96.80
Oxides of iron and alumina	0·70
Insoluble	0·17
Organic matter	2·33
	100·00."

A considerable portion of the island is now covered by soil and vegetation, and it is only along part of the inner face that the rock is clearly exposed, exteriorly it is buried out of sight by loose coral debris and above humus conceals it. I much desired to work out its extent, but had no digging tools, but I found it peeping out near both ends of the island, and in *one* place, and one place only, on the seaward face, and my impression was that the entire island was composed of this rock. If this be so, it can scarcely have been formed when the local conditions were as they now are, as in that case necessarily the rock on the seaward face would have been a coarse conglomerate, whereas, the only piece I could detect on the seaward face, was as fine grained and compact as elsewhere. Probably, this patch is all that remains of a far more extensive formation, that has been submerged since its concretion, and subsequently re-elevated. I searched in vain, however, for any conformation of this view, as I did also for any untriturated organic remains in the many pieces I succeeded (though not without much difficulty) in breaking off. If it had been a sub-aqueous deposit, it must, I should think, have contained these. However, my examination was at best most cursory and insufficient, I can only indicate Betra-par as well worthy of study by any one with time and appliances at his command, and more practical knowledge of such questions than I possess.

The only trees on the island are cocoanuts, and for this clearly it is visited by the Islanders, as we found out a sort of shed that visitors appear to be in the habit of using, and near it a great heap of huge Tiger-claw Shells (*Pteroceras lambis*), the fish of which had doubtless served them for many a meal.

Two large shrubs are very abundant and are common to the Shores of India, Ceylon, the Archipelago, Australia and South Sea Islands. The one a *Scaevola* (*S. Konigii, Vahl.*) with masses of large glossy apple green somewhat fleshy leaves surrounding irregular panicles of white flowers, the other a great coarse wild Heliotrope (*Tournefortia argentea*, L.) with an infinite number of close set whorls of oval leaves, with an universal glaucous blue tint. Of course the sandy shores, as elsewhere in all tropical countries, were covered by the bright-green leaved, purplish-lilac flowered, trailing sand convolvulus, (*L pes-caprœ*) and inside this were everywhere huge patches of that remarkable rigid-leaved grass (*Spinifex squarrosus*) peculiar to the shores of India, which is often called the Sea-pink. Not that it is anything of the kind, but only that its densely crowded masses of stiff glaucous blue leaves, remind one irresistibly at a short distance of a bed of pink

plants, after they have done flowering. A large Sedge (*Cyperus* sp.*) grew here and there in profusion, and masses of a beautiful white moon creeper (*Calonyction comospermum* Bojer) were in places densely draped over clumps of the large bushes already mentioned, converting them into an impenetrable thicket. Everywhere the shore Quassia (*Suriana maritima*, L.) common on all tropical coasts, a stunted woody shrub, with multitudes of tiny leaves, occupied the external and most exposed positions.

The only other plants on the island were a sort of Dandelion (*Microrhynchus sarmentosus*, D. C.) a miserable Everlasting (*Achyranthes bidentata*, Blume) infamous for the reckless prodigality with which it expends its seeds on all passing legs, another covered with a little white woolly caterpillar-like inflorescence (*Aerva lanata*, Juss.) and a tropically universally diffused Nyctago (*Boerhavia diffusa*, L.).

This completes the scanty flora of the island, all plants of the commonest description and the widest distribution.

But if the plants were few and uninteresting, birds were even scarcer. We remained two days at the place, circumnavigated the lagoon inside and outside without seeing anything on or near the reef, except a few Turnstones, a blue Reef Heron (*D. gularis*), one common sandpiper (*Tringoides hypoleucos*). On the island we shot a pair of common Kestrels, four Turnstones, two Sanderlings (*Calidris arenaria*), an Asiatic Golden Plover (*C. fulvus*,) and a Whimbrel. I also saw a pair of thick billed Sandpipers (*T. crassirostris*), but missed them as they rose. Lastly, I saw and carefully spared a pair of Southern Wood owls, (*Bulaca indranee*) (though one of them sat blinking and winking at me in an exasperating fashion for several minutes); but thereby hangs a tale.

I must explain that in some of the inhabited islands the people are much troubled with rats (*Mus rufescens*, as I found on securing specimens), which live up in the crowns of the cocoanut palms, and incontinently drop the nuts on the heads of passers by, and otherwise seriously diminish the outturn of the trees and make themselves generally disagreeable. Our beneficent Government, anxious to succour its suffering people, first suggested cats, but the people already had cats, which, however, getting plenty of fish below, felt no call for running up 90 feet of bare cocoanut trunk in quest of rats, which they never saw or even smelt. Then Government sent down a lot of snakes and mongooses; the former, the people exterminated

* Dr. Hooker writes that this is not new, but only a robust state of *Cyperus arenarius*, Retz.

as undesirable colonists, the latter, they put up with, but derived no great benefit from them, seeing that mongooses are not tree climbers, and the rats stick to the crowns of the trees. I am aware that the official record claims that the mongooses drove the rats up the trees; were this a fact, they could hardly have been more unprofitably employed, it being just *out* of the trees that it is essential to drive the rats, but as a matter of fact the poor *Herpestes* (the only specimen we got was *vitticollis)* had nothing to do with the matter. If they did no good, at least they did no harm in this direction—since at no time did the rat ever reside anywhere than in the tree tops, and seeing that they have plenty to eat there, and nothing to eat below, it could hardly be expected that they should.

Well, having "driven all the rats up the trees," and I perceive from the reports that this imaginary feat was deemed a decided step in the right direction, it occurred to some one to send down a lot of Owls to drive them down again. The conception was really a grand one—between two fires, what should the wretched rats do, but curse the collector and die?

Unfortunately, as is too commonly the case in India, popular prejudice interfered to mar the success of a paternal Government's beneficent schemes.

When the Owls arrived, (magnificent Eagle Owls, says the report, but practically they were Wood Owls), the people were greatly exercised. "What ails the Sirkar" said the elders "Is it not enough that they deluge us with snakes, that they flood us with long-tailed ground rats (mongooses) that kill our chickens? and now they want to afflict us with these devil birds, whose cries keep us all awake at night, and make the children scream, and the old women foretell death and ruin! Certainly we are the Sirkars slaves—what ever they order we obey, but—we won't have the devil birds." The upshot was, that four pairs of the Owls were taken to Betra-Par, where they might, without offence, make night hideous, and the remaining two, were let loose somewhere on the sly. It is true there are no rats on Betra-Par, and that if there were, it would not signify, but *que voulez vous?* the designs of a great and benevolent Government are not to be allowed to come to naught; the Owls had to be disposed of somehow; in political crisises, compromises have to be accepted, and if the unfortunate and guiltless Owls transported for life to meet an untimely grave on the desolate shores of Betra-Par, do seem to have had hard measure meted to them, we must remember that everything was done with the best possible intentions, and that even in the highest states of civilization blameless individuals have at time to suffer *pro bono publico.*

It is worthy of record that up to about 1830, enormous flocks of sea birds used to breed and lay their eggs amongst the brush wood of Betra-Par. When Mr. Robinson (now Sir W. Robinson) visited this island in 1844, the people told him that barely 10 years before they had gathered from 30 to 50 thousand eggs there in a day, and that for a long past period these eggs had always contributed largely to the support of the Islanders. Suddenly, from some unknown cause, the birds entirely deserted the islands, but whither they had gone was not then known. We now know that some at least have gone to Cherbaniani, and other reefs, and that enormous numbers now breed at the Piti sand bank, to which I shall hereafter have to recur.

But if Betra-Par can now-a-days make little show of birds, beasts, or plants, it is a perfect paradise for crabs, and, finding little employment in other directions, we captured crabs most energetically. We got nothing new here, but the variety was astounding. There were massive built, sturdy, purple, chocolate rascals (*Eriplia scrabicula* and *levimana*) that ensconsed themselves in holes of rocks in which they fitted to such a nicety that it was most difficult to dislodge them. Small long-legged silvery fellows (*Ocypode cordimana*) that scampered along the sand at the rate of ten miles an hour, and just when you thought you had them, vanished into a hole. Then there were some strange, enormous-clawed, cream-colored, and grey-mottled, knobby fellows, grubbing about in shallow water (*Calappa tuberculata*), which, when they opened out their huge arms, seemed to be dividing their bodies into three parts. Then, under every stone we turned, were dumpy brownish red individuals, with black tips to very stout claws, (*Leptodius sanguineus*), the hardest biters of the lot. Hundreds of orange red or hermit crabs (*Cenobita Olivieri*) lurked under the branches of all the low growing littoral shrubs.

Of course, the variegated *Grapsi* swarmed in myriads on every part of the reef, and on the coral blocks at the outermost face of the island. In one of the small pools, left on the face of the reef was a nasty snake like pseudo-lamprey (*Muræna tigrina*). It had, as is their wont, the greater part of the body hidden in a hole, only the head and neck was extended, and kept moving in the water with a perpetual wavy sinnous motion. Suddenly an ill-stared Grapsus passed within about a yard, there was a dart through the water, a splashing and lashing for a few seconds, and then the snaky fish was devouring the crab. Both Dr. Armstrong and myself witnessed this same performance on several occasions from distances of 3 to 10 yards, and there is no doubt that these crabs (we never saw

them catch any others) are a common prey of this Pseudo Lamprey.

But enough of crabs, there were plenty of them, and species Galore, goodness knows, but not one solitary individual big enough to be worth eating!

The sea beach was strewed with large bunches of a delicate snow-white jointed coraline (*Isis hippuris*) that looked as if it would have formed an appropriate moss for the arctic regions. The shallows were full of shells, huge massive Cones, enormous Tiger-claw shells (*Pteroceras lambis*), with their beautiful wide spreading glossy pink lips. Cowries of many species, amongst them some very large tiger shells (*Cyprea tigris*), deep red King Conks (*Cassis rufa*), Olives Cerithium, Murex, Mitra, Nassa, Natica, Nerita, Trochus, Volvorina. I know but little of shells, and shall now only add once for all that from our cruise, we brought back over 100 species of univalves of which at least 12 were new, and a still larger number, I think, of bivalves, all of which will be duly dealt with by Mr. Nevill of the Indian Museum.

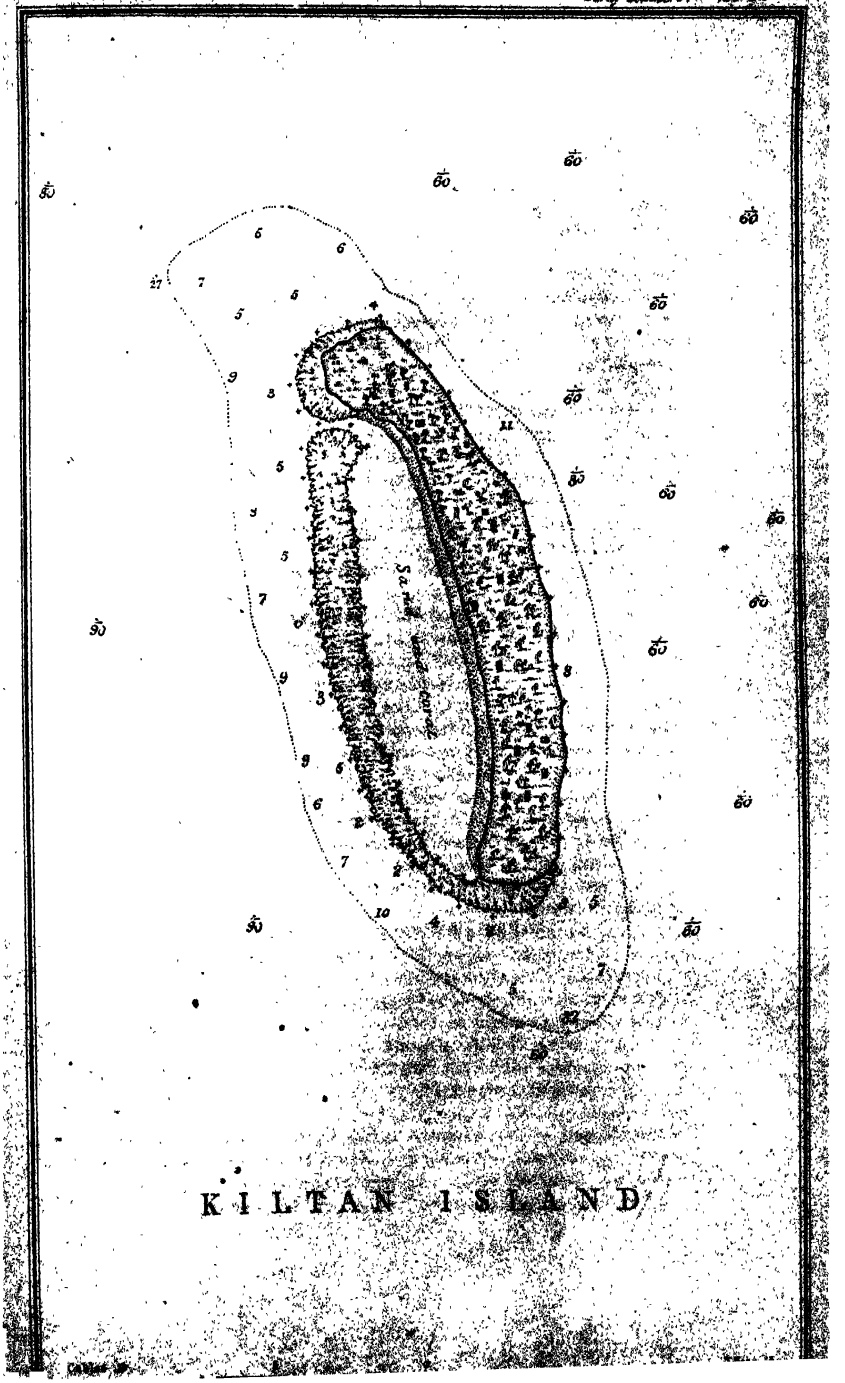
February 16th.—We tried hard last night to reach Chitlac, we steered two points to the north of it, and that was within about 6 points of the wind, which is the closest that the "Clyde" can ever manage. Well, the breeze was fresh, and about 11-30 P.M., Chitlac turned up 2 points on the weather bow, and it appeared that, in making 32 miles, this blessed old saucer-bottomed useless tub had sagged 12 miles to leeward, an achievement more remarkable than gratifying.

Of course, in such a craft there is no beating up dead to windward, and we had reluctantly to give up all hopes of Chitlac and go on to Kiltan. It was in this and similar cases that we felt so strongly the loss of steam power; but our screw was now hopelessly jambed, the condenser was disabled, and there was no help for us.

Kiltan, of which I give an accurate plan, it being quite typical of these Laccadive Atols, is a long oval reef, enclosing the usual Lagoon, with one entrance at the N. W. corner, surrounded by the usual shelving bank, varying from an one-eighth to half a mile in breadth, beyond the edge of which, the lead drops at once into very deep water, and with the whole eastern side of the reef converted into an island, which is nearly two miles in length, and may average nearly a quarter of a mile in width.

The Lagoon is very shallow, nearly dry at low water, and the island is one dense cocoanut grove almost from end to end.

The indigenous vegetation is precisely the same as at Betra-Par. I saw no species, which does not occur there, except a


KILTAN ISLAND

few screw pines, the only noticeable point was that almost along the entire lagoon face of the island, a dense hedge of the glossy-leaved white-flowered Scævola is allowed to grow just above spring-tide high water mark.

A few useful plants and trees have been introduced, such as the Bread fruit, the Papaia, the Horse Radish tree (*Moringa pterygosperma*) Plantains, Lime trees, and Castor oil plants, but there are very few of these, and the Islanders, a very happy-go-lucky race it must be admitted, seem to set but small store by them.

The way they spoke of the Bread fruit was amusing; their main conception of what was useful in the vegetable world, having been based on the cocoanut palm, which, in these islands and other suitable localities, yields its ripe fruit, week after week throughout the whole year, they regard trees that fruit once in the year and have done with it, as feeble and unsatisfactory freaks of nature. The Bread fruit was all very well they said, but what was the use of their multiplying them? They all bore fruit at the same time, the fruiting season lasted at most two months, and then for the rest of the year there was no yield. A poor sort of tree truly! However, it must be admitted that these islands are rather out of the Bread fruit's natural habitat, and that the tree probably hardly does itself justice here.

As to birds, I worked the island thoroughly, and the only really indigenous bird appeared to be the White-eyed Tit (*Zosterops palpebrosa*) which was common. There were a few Koils (*Eudynamys honorata*), but these the people said were only seasonal visitors, and as the Tit is the only bird that makes a nest in the island, and as the Koils could hardly lay in such a nest, I can quite believe that this is the case. There were several pairs of Kestrels, which the people also said only visited them during the autumn and cooler season. No Crows, no other land birds, except a pair of Owls which we were informed had madè their way to the islands from Betra-par, and which being Government protegés, we of course respected, although the people wanted them shot, as they made they said horrible noises at night. There were several Mongooses about, and we shot one which proved to be a Stripe-neck. A Falcon, apparently a Peregrine at times visits the island, but none had been seen there for a month or so previous to our arrival.

On the shore we saw and shot a single Whimbrel, also one out of a tiny flock of large Shore Plovers (*Æ. Geoffroyi*), and a couple of common Sand Pipers (*T. hypoleucos*). There were positively no other birds on or about the islands. No Gulls, Terns or other sea birds of any kind.

I had better now, perhaps, in order to avoid repetition, give once for all a brief account of the islands as a whole, and of their population.

The Laccadives, excluding the mere reefs, Cherbaniani, Cheriapani or Begrangur or Byrankoor, Pere-Mull-Par and Suheli-Par, the Pitti Sand Bank, and the uninhabited islands of Betra-Par, and of Bingaroo and Tingaroo, attached to Aucuttee, are 9 in number, *viz* :—

(1) Chitlac or Chetlat, (2) Kiltan, (3) Cardamum ór Kadamut, (4) Amini,—all under the direct management of the British Government,—and (5) Aucuttee or Agalti, (6) Cowrattee or Cabruttee, (7) Androt or Underoo, (8) Kalpini, (9) Minecoy or Munkat—all under the suzeranity of the British Government, but immediately subordinate at present to the Bibi of Cannanore.

Minecoy is often, but erroneously, included amongst the Maldives, but alike in structure, population, and the authority to which it is subordinate, it pertains to the Laccadives. The Maldives are all under a resident Sultan of their own, and, except for the payment of a small tribute to the Ceylon administration, are independant.

I was not able to visit Minecoy on the present occasion, but very early in 1863, coming out in the steamer, immediately after the wreck of the Columbia, we anchored to take up some of the engineers and crew, and I then had an opportunity of examining it.

The inhabitants of the entire group are now Mahomedans, but are of Hindoo origin, and were only converted, according to their own account, some 300 years ago. According to the local tradition, the ancestors, the original colonists, formed part of an expedition, which set out from Malayala on the west coast for Mecca in search of their apostate King Bharmul Pere-Mull, and was wrecked on these islands. They still speak a dialect of Mallayalum, which they write in Arabic, and preserve traces of Malabar castes and of Malabar customs, *e.g.*, of inheritance by the sister's son. As this custom involves the admission of its being impossible for any man to be at all sure as to who may be the father of his wife's sons, and therefore adopting his sister's sons as his heirs, as at least having half of his own family blood in their veins—it recals to us a strange state of society in which public opinion was rather hard on the ladies.

The general structure of many of the islands is well exemplified by the plan of Kiltan, an oval reef, enclosing a lagoon, and the eastern side of the reef constituting the island, which has everywhere a tendency to increase in breadth by gaining

ground westward into the lagoon, which latter seems to be simultaneously shallowing. This is conspicuously the case at Kiltan, where the island is said to gain about a yard in breadth yearly, and where the lagoon is now too shallow to admit the larger boats except at high water.

At Amini, and Underoo it is said, (*non-vidi*) the process has progressed a stage further: there are no lagoons so to speak, only a barrier reef nearly all round the islands, and so close to them that it seems likely soon to become a fringing reef. Aucuttee, however, presents a different structure as both it, and its two little satellite islands, Bingaroo and Tingaroo, are inside a huge lagoon formed by a separate barrier reef.

In most of the islands the substructure appears to be as follows :—A thicker or thinner film of humus; then dry sand varying from two to six feet in thickness; then coarse coral rock from one to two or three feet in thickness; and then below this, several feet of damp sand into which the people have only to pierce in order to procure fairly good, but somewhat brackish, water. Wells and small tanks thus constructed abound everywhere, the water in them, however, rising and falling a little with the tide, showing that the salt and fresh water are somewhere in contact in the more or less porous body of the reef, and that the increased pressure of the high tide raises somewhat the superficial fresh water supply.

The main staple of produce of all the islands is the Cocoanut. The nut itself is one of their principal articles of food, and they export largely the coir or fibre derived from the husk of the nut, the nuts themselves, and to a smaller extent, the *Khopri* or dried kernels, to the mainland. The produce of the British islands is taken to Mangalore, while that of the other islands, chiefly goes to Cannanore.

The Cocoanut trees grow easily and require little care even at the first. There are said to be about 50,000 trees in full bearing in Amini, some 6,000 in Cardamum, 20,000 in Kiltan, and 15,000 in Chitlac. These four islands supply to Mangalore about 170 tons of coir and six or seven hundred thousand Cocoanuts annually, besides a quantity of limes; a number of small cowries which, as is well known, pass as a circulating medium amongst the poorer classes throughout India; a few tortoise-shells and vinegar and jaggery pots.

No exact information is available as to the outturn of the islands now managed by the Rajah of Cannanore (which aggregate an area of about eight square miles, with a population of some 5,500 to 6,000 inhabitants), but it is similar in almost every respect to that from the British Islands, and probably about equal in quantity. In one point only

there is a difference; besides the coir and nuts, the cocoanut tree yields, when the crown is tapped, a sweet and nutritious beverage, which is much in favor with the people, and as they are strict Mahometans is always drunk unfermented. In other parts of India it is fermented and converted into a powerful arrak, here what is not drank when fresh, is boiled down and forms a richly saccharine mollasses.

In the British Islands, but little of this mollasses or jaggery is made; in the other islands, a very considerable quantity is made sufficient, in fact, to supply the British Islands also, which together, boast a population of only about 3,800 souls, of whom more than 2,000 belong to Amini.

I may perhaps say a few words about the coir manufacture, as that produced at all our islands, except Amini, is some of the very best in the world.

Cocoanut trees in these islands get into full bearing according to situation and soil in from 8 to 20 years, and continue in full bearing, it is said, from 60 to even 100 years.

A first-class cocoanut tree ought to throw out a fresh branch bearing nuts each month, and each branch ought to yield from 15 to 20 nuts, but from one accident or another, scarcely any tree really throws out more than 10 bunches in the year, and trees, that have actually produced as many as 200 perfect and mature nuts in one year, are extremely rare.

Practically, taking the trees all round in the four islands, they do not average more than 80 nuts a piece per annum.

The nut is perfectly ripe, and the kernel in the best condition for yielding oil at twelve or thirteen months. but for coir, it does not do to let them remain so long on the tree, and they are cut at about the end of the tenth month. The husks are then split off from the nuts, and are allowed to soak in the sea-water of the lagoons for about a year; they are then taken up, the fibre is easily separated from the woody portion of the husk by beating, and is twisted into a yarn by hand by the women.

If the nuts are allowed to ripen fully, the coir is coarse and extremely difficult to separate from the woody tissue. Again, if the soaking process is not continued long enough, the coir fibres cannot be thoroughly separated, while, if it is too long continued, the fibre is weakened and discolored.

In Amini they have no lagoon suitable for soaking the husks, and this process has, therefore, to be carried on inland in fresh-water pits, the result being that the Amini fibre is neither so strong nor nearly as well colored as that from the other islands. It takes about 30,000 nuts to make one ton of coir.

Besides cocoanuts and fish, salt and fresh, for local consumption, the islands produce very little in way of food stuffs; a very few vegetables, and a small number of Bread-fruits, Papaias, Plantains, Yams, and Areca-nuts are grown in the islands, chiefly at Amini Divi,* and there are a good number of Limes grown in most of the islands, but what the islanders have mainly to depend on, in the way of farinaceous food, is imported rice, which they bring back from the main-land in exchange for their exports.

If, as has happened on several occasions, many of the vessels returning with the rice are lost in any unseasonable storm (for they only communicate with the main-land during the fair season), the mass of the inhabitants are soon on the verge of semi-starvation, and Government aid becomes indispensable.

In former days, a certain amount of millets used to be grown in all the islands, now, even in Amini, little or none appears to be cultivated, and the people are wholly dependant for their supplies on the main-land, whence they bring not only rice but tobacco and salt, which curiously enough never seems to have been manufactured on the islands, the people being allowed to get duty-free salt from Goa.

The people, as far as we could judge of them, seemed a peaceful order-respecting population. They have been accused of plundering wrecks, but, I believe, the worst that can be said of them is that, when they have found abandoned wrecks on the reefs and useful articles lying about handy, they have very sensibly helped themselves. Considering that no salvage had ever been offered to them or any inducement held out to them to act otherwise, I think, that no great blame attaches to them. They have never been inhospitable or unfriendly to ship-wrecked mariners, and now that salvage has been duly offered to them, and the law on this subject explained to them, I do not believe that anything more than petty pilfering, such as goes on to this day on our own English coasts, will be heard of.

One point in the islanders favour deserves prominent record. All who have ever visited eastern climes, have had painful experience of the unpleasant sights and smells that greet one in the neighbourhood of every inhabited site. Now even in the densely populated island of Amini the visitor has nothing of the kind to encounter. The most perfect sanitation exists; the whole place is kept as clean as a private garden. There is no filth, no pigs, and except a little fishy odour here and there on the shore where fish is being salted and dried (and the people do little of this) the whole place is sweet and wholesome.

* *Dini*, which the natives commonly add to all the names of the islands, seems only to mean islands, while "*par*" signifies a reef or bank.

The islands are under the jurisdiction of the Collector of South Canara. Mr. Robinson* visited and reported on them in 1844 and 1845. No European officer again visited them, I think till 1863, since when Assistant-Collectors from South Canara have made visits of inspection three or four times. The real Government of the place consists of a Monégar or Native Magistrate, who resided at Amini, and till recently, I believe, drew the liberal salary of £25 a year; he is now, however, "passing rich on £40 a year," and is assisted by an executive of eight or ten peons scattered about the islands, who enjoy salaries of £7 or £8 per annum.

Feeble as this administration may appear, it is found, supplemented as it is by a sort of local municipal organization, to answer all the requirements of the place.

There are, in all the islands, a certain number of Mukhtessars, more or less strictly hereditary, headmen, who each exercise a certain rather undefined paternal jurisdiction over a certain number of households, and who form juries assisting the Native Magistrate and his peons in the discharge of their public duties, one of the *most* important of which consists in assembling the whole male population for a "Koot."

What is a Koot? Well *Anglice*, it is a Rat Hunt. We all in this life have our trials and crosses, and our peculiar bugbears, and to the Islanders here the special *bête noir* of existence is the cocoanut palm rat. So, once a fortnight in one island, once a week in another, and once in every two, three, or four days in others according to the intensity of the pest, the people assemble and mob the rats, the younger and more active men scale all the palms and drive the vermin out of the crowns. The rats scurry from tree to tree along the interlacing fronds, but, except at the margin of the clump which is being worked, they find a fresh foe in every tree; some are killed above, some fall and are killed by the people below, and though many escape the numbers are kept down successfully by these periodic assaults *en masse*.

The people do not pay any land-revenue to Government for the land on which their cocoanut trees, &c., grow, as they do in most other parts of India. A primitive mode of taxation, which, on the whole, appears to suit the people for the present better than any other, here survives. The Government retains the coir monopoly, that is to say, the Islanders are obliged to

* Many of the facts herein stated in regard to the islands will be found in the excellent report then submitted by Mr. Robinson, but they had all been independently ascertained by myself by local enquiries, as I did not get his report till long after my return, and my figures, which represent the existing state of affairs, will be found to differ materially in some cases from his.—A. O. H.

bring all the coir they desire to part with to Mangalore and there sell it at a certain price to Government, such price being considerably below its market value. The Government then sell the coir by auction, and under recent orders, a certain percentage on the difference between the prices paid and realised by Government is, I believe, to be given to the producers.

The bargain is not nearly so disadvantageous to the islanders as might at first sight appear. In the first place, they pay no other tax. In the second place, they are paid three-fourths in rice and one-fourth only in money, and the rice is given at a fixed rate, much less than the market value, in some years less than half that value, a rate fixed long ago when rice was far cheaper than it now is. In the third place they have no bother of hunting about for purchasers—no delay in completing bargains, and while the former is important to strangers who are invariably cheated by the mainland sharpers, the latter is a *sine qua non* as the frail 6 to 15 tons vessels in which the trade is chiefly, I may say entirely, carried on, cannot conveniently come up to Mangalore before a certain time and cannot safely return after a certain date, and on their return it must be remembered the grain supply to the whole population for a year depends.

There are other minor advantages enjoyed with regard to salt, &c., by the Islanders, so that the arrangement is not really inequitable to them, and, as a matter of fact, when administrative expenses have been defrayed, the native medical officer that Government keeps there, and the vaccinators that are sent there periodically (for the people, unlike most Indian populations, highly appreciate vaccination), are paid for, a very small surplus remains, and this is not more than sufficient to meet the extraordinary expense, which has every now and then to be incurred (as in 1863 and 1871) of suddenly chartering a steamer with rice to send down to the islands to avert general semi-starvation.

To return now to Kiltan in particular; in the central portion of the leeward half of the great cocoanut grove, which covers nearly the whole island, about 180 odd houses containing a population of some 750 souls are scattered about. Many of these houses seem comfortable enough, the walls being solidly built of blocks of coral rock, and the roofs constructed of cocoanut leaves, laid on rafters of wreck wood or split palm trunks. Many houses, however, are wholly composed of these latter materials.

February 17th.—During the night we ran down to Cardamum and anchored at the S. W. corner. This is a long oval reef, like that of Kiltan, with the island similarly situated, but much larger, the reef being probably 4½ miles and the island

3½ miles long, the latter being, moreover, fully three-fourths of a mile broad at its central and widest place.

The lagoon too is large, and in places, deep, but the sole entrance to it, that we could hear of, was only practicable for our steam cutter at or near high water, and as we did not anchor till past 10 A.M., and as the tide had been high about 7 A.M., we failed during the entire day to get through the reef or land anywhere. We circumnavigated the atoll, but failed to see even one single Gull, Tern, or Sea Bird. About 5 P. M., we got water enough to cross the reef close to the southern extremity of the island, and ran a mile or so up the lagoon, and landed some of our people. But we saw very little as it was getting dusk, and only made out, that the central portion of the island alone was planted, and that the rest was thickly covered with low scrub jungle. We arranged for some of our men, who could shoot, to sleep on the island, so that they might commence the search for birds at daylight.

February 18th.—Landed by 7·30, and worked the whole island hard till dusk. I do not believe that there could have been a single bird on the island not seen or shot by somebody. Yet large as the island is, and extensive as is the scrub jungle, the only species at all abundant were the White-eyed Tit and the common Koil. There were several pairs of Kestrels, and one *Elanus melanopterus* was seen and shot. No Crows, no other land birds, but of shore birds a very few of each of the following were seen, and one or two of each obtained:—

The Eastern Golden Plover (*C. fulvus*), the Kentish, Mongol and Large Shore Plovers (*Æ. cantianus*, *mongolicus*, and *Geoffroyi*), the Turnstone, the Indian Curlew (*N. lineatus*), the Common Sandpiper, (*T. hypoleucos*), the Greenshank (*T. canescens*), the Indian Pond Heron (*Ardeola Grayii*), and the Green Bittern (*Butorides javanicus*).

Certes, it was worth while coming so far and working so hard (and the heat was great, and the glare from the white sand, and the glitter from the water, most trying) to get a trumpery lot like this!

Of course, with so much jungle, we got a good many species of plants which we had not previously met with, but one and all common tropical plants, many of them of the widest distribution. Screw Pines were more abundant than we had hitherto seen them, but the people make no use of the fruit. I tried to teach and explain to them the Nicobarese method of cooking the fruit, whereby excellent bread is obtained. The fruit, split up in its natural divisions is boiled for 12 hours, then the doughy portions of the interior are scraped out with a shell, and patted together into a ball; a fine string is then drawn through and

through this lump of dough thus extracting the whole of the woody fibres, that permeate it; when the string drawn through, every portion of the mass fails to bring out a single fibre, the dough is rolled and patted into small cakes, which are baked on hot ashes, and are both palatable and nutritious. It is only in the Nicobars, that this process, simple as it is, seems to be understood. They have lots of Pandanus in the straits, but it is never utilized there any more than at the Laccadives. At the latter, I fully explained it, both here and at Amini, but not having time to give a practical illustration of my instructions, I fear that nothing will come of them.

The Common Southern Milk Plant (*Calotropis gigantea*) was noticed here for the first time. There were also Mallow-Worts, the small trailing *Sida humilis*, Müll, and the *Abutilon indicum*, G. Don. Quantities of wild indigo, whole fields of it, if I may use the expression, only broken by patches of a scarlet flowered Ixora (not the one, we got on St. George's Island, but *I. bandhuca*, Roxb). Large clumps of a broad-leaved shrub, not unlike the common Dāk (*Butea frondosa*), for which I think previous visitors have mistaken it, but which is really *Guettarda speciosa*, L.

A great part of the jungle is composed of a dwarf tree a Verbene (*Premna integrifolia*, L.) closely allied, though very different in appearance to the gigantic Teak. A tall fine loose flowering grass (*Apluda aristata*, L.) fills all the outskirts of the jungle. A few other insignificant herbs, *Wedelia biflora*, D. C., and *Euphorbia pilulifera*, L., complete the list of wild plants which we first met with here, and to which have to be added almost all those found on Betra-Par and Kiltan.

The population of the island, large as is this latter, does not exceed 200. They do not seem nearly so well off in any respect as the people of Kiltan. And though the soil is better perhaps than that of any of the other of the islands scarcely one-third of it is yet planted. They have only four mosques against 14 in Kiltan and 34 in Amini. They have no Schools, Blacksmiths, Barbers or Gold and Silversmiths, which all the other islands have. In fact the island is very backward in every way, and this partly seems to arise from the fact that all the inhabitants are of the lowest caste (for despite their conversion to Mahomedanism they keep up certain caste distinctions, specially on Amini, where alone any of the highest caste reside) and are in a variety of ways kept under and domineered over by the higher caste people of Amini, who exercise an undefined but still obviously real and depressing feudal influence over them. Government have, I believe, been taking measures to remedy this evil. Hitherto the people of Cardamum have been

compelled to send all their coir to the mainland in boats belonging to the people of Amini, which involved a freight charge of 20 per cent. of the coir sent. Now, I understand, they are to be allowed to send their own produce in their own boats.

February 19th.—We landed early on Amini, the best and most populous of the British Islands. It is here that the Monégar and the Native Doctor reside, and here they have no less then six schools containing over 100 pupils of both sexes. This island has grown from east to west so as to have all but completely obliterated the original lagoon.

It has a comparatively large population, 16 or 17 families of (for the islands) considerable wealth, and a good many people of better caste than any who inhabit the three islands previously mentioned. Of course they have many more cocoanuts, many more large boats than any of these, but they have besides a large plot of land near the centre of the island far better suited for cultivation than any other spot in the group. Here in some long-forgotten past time the whole superficial stratum of dry sand, and the whole coral crust (to which I have already alluded in treating of the general structure of the islands), has been apparently removed. It must have been a work of enormous labour, and it occurs to me that it may possibly be a natural and not artificial depression. Anyhow throughout this *Kot*, as it is locally called, the cultivation is down on the moist sand stratum, and everything, including Cocoanut and Arecanut Palms, grows superbly on it.

Here there are some 700 Bread-fruit trees, numbers of Lime bushes, a good number of Betel-nut Palms, Plantains and Pomegranates. Castor oil plants, Papaya and Horse-radish trees are common. I saw also several Banyan; some Tamarind, some Aonla (*Embica officinalis*), and a number of Poon trees (*Callophyllum indophyllum*, L.,) so valuable for masts and cross pieces of small vessels like those in use in these islands. A good many vegetables are also grown here, Yams, Sweet-potatoes, Arooee's (*Collocasia antiquorum*) and others.

With the comparatively large trade of this island it is not surprising that many more wild plants are found here than in the other islands. We procured every species here, that I have already enumerated, except the Sedge found on Betra-Par and besides, saw many plants of the Datura or Stramonium, of the Winter Cherry (*Physalis peruviana*, L.) of a large Cowitch with bunches of deep blackish purple flowers (*Mucuma capitata*, W. and A.) looking like Hamburgh grapes, of the lovely blue flowered creeper so common in Indian gardens (*Clitorea ternatea*) of two yellow blossomed Acanthads (*Barleria prionitis*,

L. and *ciliata*, Roxb.) and many* other inconspicuous herbs, including the broad-leaved jointed (*Panicum compositum*, L.) and common three-toed Grass (*Dactyloctenium ægyptiacum*, Weld.)

As regards birds this island is as barren as the rest, the only new feature in the case was the presence of a good number of the common Indian Crow. The White Eyed Tit was here, as elsewhere in this group, very common, and on a comparatively open plot of ground towards the south-west of the island a considerable number of Asiatic Golden Plovers were scattered about in twos and threes, and afforded rather pretty shooting, as they flew backwards and forwards just within shot, when flushed for us by the juvenile portion of the population. I say juvenile, for they were made to do the running about, but the whole population evinced the liveliest interest and sympathy in my proceedings. In the first place, they had never seen a breech loader before, and the way in which I deliberately, according to their idea, broke the gun at the breech and popped it together again, excited a perfectly irrepressible astonishment. All the head men insisted upon my repeating the performance of loading the gun at least 50 times before they would consent to order the great crowd that surrounded us to give way, and let me commence shooting. When at last I drew near to where the Plovers were, and indicated that I was about to shoot, it became very apparent that they had no confidence in the safety of a gun that could open and shut in that way, and as I raised the gun to fire, the whole multitude fell back helter-skelter higgledy-piggledy, tumbling one over the other and creating such a terrible stampede that I was obliged to pause awhile to allow them to recover themselves.

But in the second place they had never seen a bird shot flying, and when a few minutes later, a pair of Golden Plover flew over at a height of about 40 yards, and I knocked them down right and left stone dead, the crowd raised a roar of applause, that for a moment made me fancy myself a successful candidate on the hustings on the declaration day. After this there was no shooting for another quarter of an hour, every

* These are as follows:—In giving this list I desire to record my obligations to Dr. King who verified for me all the plants I collected. Though I formerly made Indian Botany a special study, my knowledge of specific names has grown rusty and having now no botanical library, I could not without Dr. King's kind aid have made certain as I now can of the correct names of many of the species, common, though most of them

Cleome viscosa, L; *Cardiospermum Halicacabum*, L; *Crotolaria verucosa*, L; *Vernonia cinerea*, Less; *Ageratum conyzoides*, L; *Plumbago zeylonica*, L; *Tylophora asthmatica*, W. and A; *Peristrophe bicalyculata*, Nees; *Rungia pectinata*, Nees; *Leucas aspera*, Spreng; *Euphorbia atolo*, Forst; *Phyllanthus madraspatensis*, Müll.

body insisted upon a close inspection of the wonderful gun that could do this sort of thing. I did not observe that I got any credit for my good shooting, it was all the wonderful gun, such a gun! and at least a dozen gentlemen at once signified their willingness to accept it, if I would only kindly supply them with plenty of ammunition.

At last every one was persuaded to allow us to continue shooting. We got a good number of Plovers, and then a lot of the boys and men took us to all the places about the island where birds were ever seen, and before we had finished, assured us that they never saw any other birds besides those they had shewn us. This of course must be accepted *cum grano*, but I think I may safely assert that there were no other species at that time on or about the island. All the species we saw were a single White-Bellied Eagle soaring above the island, a chance visitor, as the people said they had never seen one like it before, a female Peregrine, a Black-winged Kite (*Elanus melanopterus*), several Whimbrel, several Koil, a few Turnstones, and common Sandpipers and a couple of Pond Herons (*A. Grayi*). These with the Crows, Plovers, and White Eyed Tits constituted the entire *avi fauna* of the island, save only of course the pair of Government Owls whose sanctity we religiously respected.

The people of this island appeared to me an extremely sociable, good tempered, intelligent lot, and as the Native Doctor of the place (who talked English and Malayalum fluently, had resided sometime in the island and enjoyed the confidence of the inhabitants,) accompanied us from sunrise to sunset interpreting whenever we were at fault, we got on famously with them, and collected without the least difficulty every possible kind of information.

Early in the morning I expressed a wish for some Turtle and any good shells that they could find, and by the afternoon about a dozen edible Turtles weighing from 30 to 50 or 60 lbs each. (*Chelonia virgata*), and a number of fine King Conks (*Cassis rufa*) a couple of very handsome Tritons, and several beautiful red Mitres (*Mitra episcopalis*) were brought, together with vegetables and other things for which the islanders were with great difficulty prevailed on to accept a small payment.

The Turtles had not been speared as they always are at the Andamans, and when I asked how they had been captured, the men said that they jumped into the water where it was not above 6 to 8 feet deep, and seized them with their hands. I confess I hardly credited this, so I had the biggest Turtle, a very lively and energetic party popped into the largest fresh water tank in the place in which the water was quite muddy and fully seven feet deep. The moment the Turtle touched the water he darted

off and disappeared; one of the men then jumped in, dived, but failed to find the Turtle; a second dived, and almost immediately brought the Turtle up, and holding his belly upwards, despite the violent flapping of his limbs, swam safely to the bank with him. After this I did not hesitate to believe that in the clear water of the lagoons, where it was not very deep, Turtle would stand a poor chance with half a dozen of these amphibious Islanders after them.

I have said something of the curious customs of these Islanders in the matter of the succession always going to the sister's son. Scarcely less curious are their marriage arrangements. When a young man marries he cannot remove his wife from her father's house, but he must, at any rate, if on the island, sleep every night at his father-in-law's house; if he misses a single night, a terrible row ensues, and in this matter the ladies so entirely have their own way that absences of this kind are very rare. As a rule, a man takes his meals also at his father-in-law's house. This, however, is optional, but if he does so, he must provide the food for his wife to cook. This state of things continues throughout a man's whole life. Even when his maternal uncle dies, and he becomes himself the master of a house of his own, he can never take his wife there. The woman lives and dies in the house in which she is born, and with her remain her children; both she and they belong to her father's family and not to her husband's. *Primâ facie* this would seem to be an impracticable and unnatural arrangement, but it is astonishing with what facility human nature adopts itself to any custom, and how the unnatural of one people or age constitute the natural of another; and, as far as I could ascertain, the people were just as happy and comfortable under this, to us, abnormal state of affairs as they are elsewhere, where domestic arrangements are more in consonance with our European proclivities.

When towards evening, I walked leisurely about with a group of elders in the central portion of the island, I thought I had rarely seen a prettier sight. Everywhere towering over our heads waved the feather crowns of the finest and tallest cocoanut trees I have ever seen; the declining sun poured in a perfect flood of golden light through the fretted canopy of softly undulating fronds, imparting to them an almost unearthly brightness. Below, hiding half the pillar-like palm stems, which seemed to stretch away endless in all directions, and already shrouded in the gloom of evening, dense masses of bread fruit trees hemmed us round with deep green many-fingered foliage. Lower again infant palms of the most marvellous vigour and symmetry (destined to replace, when the inevitable evil day

arrives, their gigantic progenitors above) dot the smooth green plots and half conceal the snowy paths (clean and trim, as in some ancient virgin's garden), which divide the various tiny properties. In this part of the island, where the trees yield habitually nearly a couple of hundred nuts a year, a single rood is the estate of a millionaire.

A hundred artificial divisions separate inevitably the roots, and round them we wrangle or smile as the spirit moves us, but high over head the up-risen crowns blend in everlasting harmony in the blue heaven, one and undivided.

February 20th.—During the night we came on to Pere-Mull-Par, a huge triangular atoll, with only one small bank (say 200 yards in length by 50 in breadth) at the N. E. corner above high water mark, but with the greater portion of the boundary reef more or less visible at low water.

As we neared the reef, we saw a huge flock of large sea birds fishing away out to seaward. They were fully a mile off, and it was impossible to find out what they were. I went after them in the steam cutter, but they moved away nearly as fast as we steamed, and after an hour's chase, and running at least nine miles, they were still three quarter of a mile distant. My impression is, they were so large and white, and fished so like Cormorants, that they were *Sula piscator*, but I have never shot, or even seen, this bird alive, so that I cannot feel certain.

Any how they were white and fished like Cormorants. These latter birds, as a rule, always desire to be *primi inter pares*. The flock swims along very rapidly, probably chasing a shoal of fish. Each Cormorant, the moment he finds that he is last, rises and flies to the front, and so the whole flock is incessantly playing a sort of "pat-a-cake, pat-a-cake baker's man" game—there being an unbroken stream of birds perpetually flying from the rear to the front of the flock. The rapidity with which the flock, two-thirds of it in the water and one-third in the air, manage to move is surprising; in the present case the flocks moving in this manner cannot have progressed at a slower rate than between 8 and 9 miles an hour.

We entered the atoll without difficulty near the southern extremity, at noon. Not a bird was to be seen, except a few Turnstones about the partly bare portions of the reef. The lagoon up which we steamed was mostly very shallow and dotted about with lumps and bosses of dead coral, through which it was difficult to steer, going at the pace our cutter can go. As we ran on towards the bank at the N. E. corner, two or three *S. fuliginosa* passed, and these were all we saw of this species here from first to last. Clearly this is not one of its head-quarters. Nearing the sand bank, we saw an immense

flock of Terns sunning themselves on a tiny out-lying patch in the lagoon some 50 yards inside the main bank, and in their midst one large dark brownish bird towering above them like a giant.

When we were about 200 yards distant we cut off steam and ran on noiselessly with the way we had on, until we were about 80 yards off the flock. I was lying ready in the bows, and as the big bird rose, I fired and had the luck, long shot as it was, to break a wing. It turned out to be a Booby, *Sula fiber*. Strange to say many of these as I have seen, it is the first that I have ever shot.

As I knocked over the Booby all the Terns rose, and we gave them 3 barrels, bringing down 18 *S. bengalensis* and 12 *S. Bergii*. A few moments later, whilst we were busy picking up the dead and wounded, a small flock of *Dromas ardeola*, which must have risen on the seaward face of the bank, passed within ten yards of the boat, but my hands were full of Terns and I could not get at a gun in time, and they swept away towards the other end of the lagoon, where, although we saw them later, we quite failed to obtain a shot. There was not a particle of vegetation on the bank, and, although the people at Amini assured us that large numbers of Terns bred upon this bank (probably the two species above mentioned, of which there must have been some thousands), we could find on it no old or rotten or broken eggs, or other traces of this. Still the sand bank is so absolutely devoid of any vegetation, so entirely bare, smooth, and wind-swept that this is not to be wondered at, and I do not doubt that these birds really breed here—probably towards the latter end of May. Neither *Bergii* nor *bengalensis* showed on dissection any signs of breeding, and all were still in winter dress.

The only other species observed here was that cosmopolitan, the Common Sandpiper.

February 21st.—Came on during night and anchored inside the great lagoon of Aucuttee. The barrier reef is somewhat shoulder-of-mutton shaped, the knuckle to the south, with Aucuttee itself in the middle of the knuckle, and two small uninhabited islands, Bingaroo and Tingaroo, towards the edge of the blade at the N. E. corner. The barrier reef is high and strongly marked on the N., N. E., and more than half the eastern side, and here I think some points remain uncovered even at high tide; elsewhere it is much lower—much of it never becoming bare even at low water, and being pierced with broad deep ship channels in several places.

We first went northwards to a small sand-bank half way between our anchorage and Tingaroo, and there saw a few Turnstones and a single *S. Bergii*.

We caught a lot of crabs here and got numbers of shells, but saw no birds, and ran on to Bingaroo, a mass of vegetation down to the waters' edge, dense with cocoanuts above and screw pines below. The undergrowth was also very dense. Enormous patches of a great sedge (*C. pallidus*, Heyne,) common in Burmah, the Malay Peninsular and Borneo, and now in full flower, were very conspicuous. We observed most of the plants already recorded, but they grow here with a luxuriance which contrasted strongly with the generally-stunted growth of the same species on Betra Par. The rosemary-like shore quassia (*Suriana maritima*, L.) was here in great densely-packed bushes, dotted with small orange yellow flowers. Interiorly the place was an almost impenetrable thicket, full of grass of many* species not obtained elsewhere (*Panicum verticillatum*, L.—*Cynodon dactylon?*—a species of *Hemarthria*, and others not in flower and not identifiable.)

Masses of *Cæsalpinia bonducella*, Flem, with its all pervading, sharp double recurved thorns, recalling the "Bide-a-wee" thickets of the Cape, in many places barred all progress.

Hard work as this was, I worked backwards and forwards for more than two hours, and was rewarded by seeing and shooting a couple of Koils! There were absolutely no other birds, not even White-eyed Tits, on the island.

Tingaroo was less wooded, but here also there were no land birds, but on the shore and on a long sandy reef that runs out from Tingaroo, we shot Turnstones, a Kentish Plover, and a Curlew, and saw for the first time several common Herons (*Ardea cinerea*).

Lastly, on the reef a splended female Peregrine kept for some time unsuccessfully striking at the Turnstones, and at last came right over us.

The whole north-east portion of the lagoon in which these islands and banks are situated is excessively shallow. Paved throughout with snow-white sand the water assumed the loveliest pale chrysophrase tint imaginable, but this failed to console us for the fact that we were perpetually getting aground, sticking first here, then there, having all to evacuate the cutter, and even lift out the coal bags, &c., and so on. It delayed us terribly as did likewise an unsuccessful attempt to capture turtle, of which there were numbers about. It was very simple when the Amini people did it; but none of us, natives or Europeans, could touch a flapper.

It was past 2 before we started southwards along the edge of the reef for Aucuttee—a long run—but not a single bird was

* I also noticed here, for the first time, *Morinda bracteata*, Roxb.

seen, and by the time we reached Aucuttee, there was a tidy sea up, and we got into a terrible race round the north-west corner of the island, and we not only found it impossible to land, but had the greatest difficulty in getting out of the mess. For at least a quarter of an hour it was a very near thing—twice the engines ceased to revolve, when, with every care in steering, we took heavy seas aboard—each time every one held their breath, as, had we lost way, we must have instantly rolled over, and to say nothing of sharks, of whom we had seen several, no one probably could ever have made head against such a seething jumble of waters; but each time the dear little engines were click-clacking again in less than a minute, their mite of a pump rapidly baling out the water, and just after dark we got alongside the old "Clyde" all safe and none the worse for the prolonged shower-bath to which we had been exposed.

February 22*nd*.—During the night we came on to the Pitti or Pootti sand-bank, which is the extreme southernmost point of an enormous sunken bank over 20 miles in length, which stretches up northwards almost to Amini. All the rest of the bank is from 6 to 20 fathoms below low water; this one patch, nearly square, perhaps 200 by 300 yards, of pure sand, rises about 6 or 7 feet above high-water mark. This island stands on the extreme verge of the shoal which is there semicircular, so that, while on the greater part of three sides there is only from 10 to 12 fathoms water round it, on the fourth there is more than 100 fathoms very close to it. It must clearly rest on rock or coral, for while it shelves very steeply, more steeply than I should have thought it possible for sand to stand, for a short distance, it then goes sheer down in the way that only rock or coral can go.

On this sand bank, we learned at Amini, that in April incredible numbers of sea birds now breed—the main portion probably of the vast colony that in years prior to 1830 frequented Betra-Par for this purpose. Towards the end of March they begin, it is said, to congregate there, but at present there is not a sign of one. Yearly the boats of Amini, on their way back from Cowrattee or Cabrutee, touch at this shoal (as far as we could make out in the latter half of April) and bring thence as many eggs as they can stow away. The birds are said to be so close-packed that one has to kick them up to get across the bank, and so tame that they may be taken by the hand. Several species seem to breed here, some white and as large as geese, (? *Sula piscator)* some grey, some dark, some big, and some little, but naturally one could get no satisfactory particulars, such as would enable one to fix the species, out of the islanders.

Remembering the evidences collected at Vingorla, I was anxious to visit this sand bank, hoping to find a clew on the spot to the birds that breed there. But unfortunately nothing was to be seen; the sand swept by the monsoon winds was as smooth and clean as if no "Booby fair" had ever been held there.

Then we came on to Cowratee, a fine island belonging to the Cannanore Rajah. It is of the usual type, with a fair lagoon, which, however, appears to have only one entrance which we did not like to attempt on the strength of our not-very-reliable chart, the more so as the whole reef seemed enveloped in a frightful surf. However, a canoe soon came out, a most loquacious and amusing individual joined us, ascertained our draught, and piloted us in through a perfect snow-storm of surf in perfect safety. The island contains about 1,000 people, who seem to be a good deal better off than the inhabitants of any of our islands. The soil perhaps is better, and then for some years they have, I believe, refused to pay the Rajah anything. He owns a number of trees in the islands, and these he leases at half-produce rents to some of the islanders. Even these, as far as I could understand, never really paid a fair share of the produce, while the rest never now pay him anything. Of course therefore they are better off than in our islands, where there is a coir monopoly, and where the people in this way have to pay the cost of the administration; but, *per contra*, there is no administration at all in the Cannanore Islands, a very anarchical state of affairs prevails, and the people expressed great anxiety to be brought direct under British rule. I believe there is some prospect of this being done, but when the people do get King Stork, I venture to predict that it will not be long before they bitterly regret the good old days of King Log. The fact is, that throughout these islands, what these people want is to pay nothing to nobody, do what they like, and have cargoes of rice sent them gratis and for love when times are hard and their usual supplies fail. Of course British government and native non-government alike fail to fulfil these Utopian visions. It is the same everywhere. Go where you will in native states and the people long for and descant on the blessings of British rule. But I have never yet seen any part of the country which had been 50 years under that rule, where the people did not believe that they would prefer to revert to native rulers. Both systems have their evils and advantages, and so far as the comfort of the masses is concerned, I am unorthodox enough to believe that there is little on the whole to choose between the two. But the people are like children, and always fancy that what they have *not* got is better than what they have.

I saw nothing specially noticeable in this island beyond the general appearance of superior comfort amongst the inhabitants. One shrub, a Daphne (*Hernandia peltata*, Meissner) with broad cordiform leaves, and large glossy whitish drupes, containing a black seed or nut, I saw here for the first time, but the plants generally were those already noticed. As for birds it was the same story; on land nothing but White-eyed Tits, a Kestrel and a pair of Peregrines, and on the shore the ubiquitous Turnstone. Nothing else, though we traversed every part of the island, which we did not leave till dusk, piloted out safely, despite darkness and surf, by our loquacious friend. He insisted, late as it was, on paying the "Clyde" a visit. He had conceived an immense fondness for the steam cutter; our little engines seemed to be a source of intense delight to him. Their rapid click-clack, click-clack seemed to have an inspiriting effect on him, and from the moment we cleared the breakers, until we ran alongside the "Clyde," he sung in the most energetic manner what we understood to be a love song, keeping time scrupulously with the beats of the pistons. When on board he suggested that, as we could easily get another where we were going to, we should leave the steam-cutter with him, but, meeting with no encouragement in this direction from us, he went away ultimately with a few seers of fine rice, quite happy, in a pitch-dark night and a nasty sea, and duly lit, as he promised, a large torch on the point when he landed to show us that he had safely crossed the reef.

February 23rd.—When about 18 miles from Kalpeni, in Lat. 10°6′4″; N. and "Long. 73°17′5 E., we took soundings and found bottom at 990 fathoms. This was of course still well within the group, and helped us in no way towards the depth of the trough dividing the group and the mainland.

In the evening we made Kalpeni and got just in the right place to anchor at the S. W. corner. The word was given to let go, the vessel gave a heavy roll, and the anchor caught in the bo'sprit chains. This was the port anchor, the gear of the starboard anchor we had carried away the day before, and we drifted off the scanty bank of soundings before we could get the port anchor disengaged. Then of course, though we had a fresh breeze, no power on earth could make the old "Clyde" work up a yard to windward. We did try it, and made several tacks, but never gained an inch, for, though she might lie up a little higher, she always sagged bodily to leeward, and at last we had to give it up and bid farewell to the Laccadives.

February 24th.—We hove to again in N. Lat. 9°46′8," and E. Lat. 74°34′8" to sound. This was as nearly as possible

the centre of the trough. But our usual ill-luck attended us, and when a little over 700 fathoms had run out smoothly, the line taut and well up and down, it parted. At 4 P.M., having remarked the line and gone over it again carefully, being then in about N. Lat. 9°38′40,″ and E. Lat. 74°55′40,″ we again sounded and got bottom at 1,290 fathoms. It was so far a thoroughly satisfactory cast, but we only got in again 400 fathoms, and then the wretched line parted again. Not a single bird was seen either yesterday or to-day.

February 25th.—En-route to Quillon—During the day two or three *Phaetons*, all of the *æthereus* type, looked us up, but no other birds were seen.

When evening closed we were about 20 miles distant from Quillon, and then changed our course southwards towards Kolachul.

February 26th.—Running down the coast very slowly, two Bo'suns looked us up about 8 A.M.; after this we kept closer in, and these were the last that we saw during the trip.

Of the rest of our cruize little need be said. On the 27th we reached Kolachul. There were no sea birds about, except a very few *Larus brunneicephalus*. We had only a few hours on shore, and saw nothing but the commonest birds. Crows (*C. impudicus*), Kites (*M. affinis* and *H. indus*), Palm Swifts (*C. palmarum*), the Common Coucal, with black interscapulary region (*C. rufipennis*), Wood Shrikes (*T. ponticeriana*), Bulbuls (*P. pusillus*), the Common Mainah (*A. tristis*), and the Pond Heron (*A. Grayii*). One bird only requires notice, the *Malacocircus* though nearest *griseus* is not typical, and I have no doubt would be separated by some as a distinct species. In its more rufous tail it approches *Sonnervillei*, but it is not so large as this latter, and has the feebler bill and pale head of *griseus*, from which, however, it differs not only in the deep rufous tail, but also in the constant occurrence of more or less bright ferruginous patches on the nape and back—patches, which not unfrequently form a demi-collar and sometimes cover the whole interscapulary region. The bills also seem to be slightly longer and more slender than in typical *griseus*. However, all the many races of Indian *Malacocirci* so run one into the other that I feel no inclination to propose any separate name for the South Travancore coast race, well marked and constant as its peculiarities seem to be.

On the 28th we sailed for Tuticorin, but here our evil fortune stuck to us; the wind was adverse, and for nine whole days and nights we tried vainly to get round Cape Comorin. Backwards and forwards from the Cape to near the coast of "Ceylon" we tacked and tacked; each day we thought we must have gained

ground, and each day we found ourselves back exactly abreast of the square mark that indicates the extreme southern point of Hindostan. All this while the weather varied, now it rained, now the sun shone, now it was dead smooth, now there was a little sea ; one thing only never varied, and that was the direction of the wind, which much or little was always dead ahead! All this time no single Gull or Tern or Bo'sun ever came within sight, and a drearier time than we had of it (and it was horribly hot withal) could scarcely be imagined.

At last we made Tuticorin, and I had had enough of the old "Clyde," to which I here bade farewell, devoting the rest of my leave to Southern India, the Pulneys, and Neilgherries, of which I need say nothing here.

After I left, Dr. Armstrong went on with the "Clyde" to Paunben and spent some days about Ramesuram Island, which forms the Indian end, as Manaar does the Cingalese end, of Adam's Bridge. Though chiefly occupied with marine zoology, his own especial branch, Dr. Armstrong very kindly collected several birds for me on this island, and, as so far as I am aware, no specimens have hitherto been recorded from this locality, I think it may be useful to give a list of what he procured, imperfectly as this must necessarily represent the local avi-fauna.

The island he tells me is about eight or ten miles long, every where very low and sandy, and mostly covered with a low thin tree jungle. We might have expected this to be a paradise of sea birds, and doubtless at one time it may have been so, but it is now the highway along which passes and repasses the mighty stream of emigration that goes on continually between Southern India and "Ceylon," and Dr. Armstrong did not observe a single Gull or Tern about the place when he was there in the middle of March.

List of specimens procured at Ramesuram Island.

17.—Tinnunculus alaudarius, *Briss.*

76.—Athene brama, *Tem.*

The specimens are rather small and dark, and rather finely spotted, recalling, as do likewise some of the Anjango specimens, the *A. pulchra* of Pegu.

181.—Brachypternus puncticollis, *Malh.*

A thoroughly typical example ; the throat only marked with small circular spots.

212.—Coccystes jacobinus, *Bodd.*

216.—Zanclostomus viridirostris, *Jerd.*

This species also occurs in the Northern half, at any rate, of Ceylon.

234.—Arachnechthra asiatica, *Lath.*

255.—Upupa nigripennis, *Gould.*

The specimen procured approaches closely to *N. longirostris* of Burmah; it is a female with a bill 2·3 at front, and not the faintest trace of any pale colour intervening between the chesnut of the body of the crest feathers and their black tips.

265.—Tephrodornis ponticeriana, *Gmel.* *See* S. F., Vol. I., p. 435.

The Ramesuram specimens at first appear rather to contravert the theory propounded *loc. cit.* The entire upper surface is earth brown without the least tendency to grey; the supercilia are large and well marked; the cheek and earpatch contrast well with the color of the upper surface; but if the map is looked to, it will be seen that Ramesuram belongs geographically to the flat lowland eastern coast district, the fauna of which is much more closely allied to that of Central and Upper India, whereas the birds from Anjango, which so closely resemble the Ceylonese *affinis*, belong to the western mountainous heavy rainfall tract, which assimilates closely in its physical conditions to many parts of "Ceylon."

278.—Dicrurus albirictus, *Hodgs.*

287.—Artamus fuscus, *Vieill.*

288.—Tchitrea paradisi, *Lin.*

432 *bis*.—Malacocircus striatus, *Sw.*

Identical with Ceylonese specimens

438.—Chatarrhæa caudata, *Dum.*

460 *bis*.—Otocompsa fuscicaudata, *Gould.*

467.—Iora zeylonica, *Gmel.*

475.—Copsychus saularis, *Lin.*

A male has a black margin to both webs of the 4th pair of lateral tail feathers (counting from the exterior) from the base almost to the tips, thus approaching C. *musicus* of the Malayan regions.

530.—Orthotomus longicaudatus, *Gmel.*

600.—Corydalla rufula, *Vieill.*

687.—Temenuchus pagodarum, *Gmel.*
760.—Pyrrhulauda grisea, *Scop.*
822.—Ortygornis ponticeriana, *Gmel.*
845.—Charadrius fulvus, *Gmel.*
860.—Strepsilas interpres, *Lin.*
878.—Numenius pheopus, *Lin.*

I need only here add that in the Madras roads, where Dr. Armstrong also collected, the only sea birds that he met with at the end of March were *Larus leucophæus*, all more or less in immature plumage, and *Xema brunneicephala* mostly getting into and one already in perfect breeding plumage.

I will now give a separate list of the species of birds actually observed at the Laccadives, remarking by way of preface that, unsuccessful as on the whole it was, our cruise established.

1*st*—That the Laccadives are divided from the main land of India by a deep trough, not less than 1,300 fathoms in depth, and possibly considerably more.

2*nd*—That they have no distinctive fauna or flora. No Mammals, except the common Indian *Mus rufescens*, that even in the neighbourhood of Calcutta infests cocoanut trees.

No land birds, except a very few of the commonest Indian species.

No non-Indian plants, the flora consisting mostly of species common on the sea-coasts of India, and more or less diffused over China, Java, and the Straits, extending in many cases to the Malayan Archipelago, Australia, and the South-sea Islands and in several to the tropics generally.

I may add that the majority of the species of plants possess, according to native ideas, medicinal properties, and are therefore just those which are most likely to have been introduced by human agencies; and that, as a matter of fact, it is in the largest island, where the population is greatest and the communication with the mainland has been on the largest scale, that the number of species is greatest.

There appear to me reasons for suspecting that the northern members of the group, at any rate, have undergone a period of subsidence since the coral, of which they mainly consist, was formed, the subsequent elevation not having been sufficient

to allow the re-emergence of those now represented by the great banks of Padrio, &c. Probably the subsidence was greatest to the north, and not improbably it was connected with the volcanic agency which we know to have been in operation scarcely more than half a century ago in the Runn of Cutch, *which is due* north of the group.

And now for our scanty list of birds. One feature, in which, *viz.* its non-inclusion of a single Gull, deserves prominent notice.

Never did we even catch sight of one of these birds anywhere in or about the group. Up to this moment, so far as I can learn, no Gull has ever been seen or shot anywhere in or about the Andamans or Nicobars; certainly we never saw one.

Primâ facie one might have expected all these oceanic groups to have abounded with Gulls; as a fact, as far as I know, no Gull ever visits them, except perhaps when blown out thither from inhabited coasts in a cyclone.

The explanation seems to be that, while the Terns are the Hawks and Falcons of the ocean, the Gulls play at sea the part of the Kites on land. It is where offal abounds, the dejecta of crowded human life or extensive fisheries, that the Gulls, when not intent on breeding purposes, love to dwell. In the fish market at Kurrachee, at Muscat, Guader, Cochin, the Chilka, the mouths of the Hooghli and the Ganges, they swarm during the non-breeding season, but the pure seas of the thinly-populated groups referred to are as much out of their line as ices and wafers at Gunter's are out of that of the ordinary London Scavenger.

List of species observed at the Laccadives.

8.—Falco peregrinus, *Gmel.*

The Peregrine appears to be a tolerably common visitant to the islands. We saw it at Amini, Bingaroo (of Aucuttee) and Cowrattee, and heard of its occasional appearence at Kiltan. It does not, however, breed in the islands, nor does it seem to visit them at any one particular season. It is seen at all periods of the year, even during the monsoon; sometimes a single bird and sometimes a pair make their appearance, and remain sometimes only a single day, sometimes for months; so at least say the natives who know the bird well.

17.—Cerchneis alaudarius, *Briss.*

The Kestrel is the commonest Raptor at the Laccadives during the cold season. We shot it at Betra-Par, Kiltan, Cardamum,

and Cowrattee, and it probably occurs at every single island. It does not, however appear to breed in the islands, or to remain there during the hot season or monsoons.

The specimens obtained were all of the European type and not of the deeper-colored race resident in Southern India.

43.—Cuncuma leucogaster, *Gmel.*

We only once met with this species anywhere in the group, and there we saw a single bird of this species soaring for hours high above the island of Amini. The people to whom I pointed it out declared that they had never seen a specimen of it about the islands before, though several of them knew it as common along the coast. We cannot of course quite believe that this was a special manifestation for our benefit, but we may certainly accept the fact, that it is only a very rare straggler to these islands.

I have already (*supra*, p. 423,) made some remarks about the habits of this species, which I had many opportunities of watching closely at Pigeon Island, and I may here record a few particulars in regard to specimens there obtained. Three adults measured in the flesh :—

	Length;	Expanse;	Tail, from vent;	Wing;	Tarsus;	Bill from gape;	Weight.
♀	29″·5	82″	11″·5	23″·0	4″·0	2″·65	6lbs.
♂	26″·5	72″	9″·9	20″·6	3″·75	2″·3	5·5lbs.
♂	26″·75	74″·5	9″·8	21″·0	4″·0	2″·4	4·8lbs.

The irides were brown; the legs and feet white, more or less tinged with a greenish brown, sea-weed-like colour on the soles and edges of the scales; the claws black; the cere and gape pale leaden colour; the lower mandible pale blue, brownish at the tip; the upper, pale somewhat leaden brown, bluish at junction with cere.

I noticed that in the very young birds the legs and feet are a beautiful white, with the faintest possible pink or blue tinge, but as they get older these parts, especially on the soles and edges of the scales, acquire a dirty greenish sea-weedy appearance.

The plumage of the adult has been often well described—not so I think that of the nestling. A young female from the nest, fully fledged but not able to fly, the primaries being only half developed, had the whole of the top and the sides of the head a rather pale wood brown, every feather tipped with yellowish white; the back and sides of the neck, interscapulary region and scapulars, rich purplish brown, each feather tipped with buff, or in the larger scapulars, buffy white; the primaries, black; the secondaries and greater coverts, blackish

brown, the former paling somewhat as they approach the tertiaries, which are wood brown and with the later secondaries are tipped paler; the median coverts, dark brown, whity brown towards the tips; the lesser coverts, a rich dark brown with minute buffy or whitish fringes at the tips; the tail is white, freckled and mottled with dark brown towards the tips, and margined at the tips with buffy white; the upper tail coverts are white at their bases, brown at the tips; the chin, throat, and cheeks, and the sides of the abdomen and flanks, are a warm rufous buff; the ear coverts, dark brown; the base of the neck in front and upper breast, a warm brown, the feathers tipped or tinged at the tips with buff color; the centre of the upper abdomen and lower abdomen mingled brown and buffy; the vent and lower tail-coverts white, tinged with buff.

In a female, well able to fly, having perhaps left the nest a month, the rich buff markings of the interscapulary region and scapulars had diminished much in size and paled in colour, and the buffy white tipping of the feathers of the top and side of the head had increased in size, and spread up the margins of the feathers so as to leave but little of the brown visible.

In a young bird, about thirteen months old, the colors had all become much duller, the whole of the top and sides of the head and back of the neck had become sandy or buffy white, the feathers dark shafted, and the brown bases only showing through here and there. The whole of the buff and buffy white tippings to the feathers of the upper back, interscapulary region, scapulars, wings, tail, and breast, had disappeared, and, as already mentioned, the warm rich browns and buffs had faded. The upper tail-coverts retained only a freckling of blackish-brown towards their tips, and the lower back, which in the birds recently out of the nest is dark brown, each feather broadly tipped with white, had become a dull pale brown, with barely a trace of such a tipping.

56.—Milvus govinda, *Sykes.*

Although we never met with this species, it is certain that at times individuals of this species or of *affinis* do occur at Amini and some of the other islands. It is, no doubt, only a chance straggler to the group, but it is one that not very uncommonly appears there.

59.—Elanus melanopterus, *Daud.*

The Black-winged Kite appears to visit these islands regularly, though in very small numbers. We procured specimens

on both Amini and Cardamum, and, though we met with it nowhere else, it is a bird clearly recognized by the people. There is no reason to believe that it breeds here.

214.—Eudynamis honorata, *L.*

We procured this species on every inhabited island that we visited. Unless perhaps at Amini, where there are Crows and one or two of the Cannanore Islands, at which also this latter species occurs, they can only be, as the people affirm, seasonal visitants—there being no bird in whose nests they could lay their eggs.

637.—Zosterops palpebrosus, *Tem.*

The White-eyed Tit is the one resident land bird of the group. Crows also are resident in one or two islands, but the Tit occurs in every inhabited island that we touched at.

663.—Corvus splendens, *Vieill.*

The Common Crow was pretty abundant in Amini, but we saw it at no other island. We heard, however, that it also occurred at one or two of the Cannanore Islands which we did not visit.

The Crows at Amini are a very dusky race. The pale collar ill marked, and one or two specimens recall *C. insolens* of Burmah.

845.—Charadrius fulvus, *Gmel.*

We saw and shot single individuals of the Asiatic Golden Plover at almost every island in the group that we visited, but it was only at Amini that we saw any considerable number of the species. There, there were certainly fifty, not immediately on the shore, but feeding about in twos and threes in a small comparatively bare plot of ground densely studded with clumps and beds of the curious Sea-Pink grass (*Spinifex squarrosus*, L.) already referred to.

846.—Ægialitis Geoffroyi, *Wagler.*

Not very uncommon at the islands. We saw, I suppose, a dozen at Cardamum and Kiltan, and I believe saw, but failed to shoot it, at one other island.

847.—Ægialitis mongolicus, *Pall.*

We obtained three specimens at Cardamum, and these, I think, were all we saw.

848.—Ægialitis cantianus, *Lath.*

We saw, I think, only two of these—one at Cardamum and one at or near Bingaroo in the Aucuttee atoll.

860.—Strepsilas interpres, *Lin.*

The Turnstone is the commonest bird in the Laccadives. We found it on every reef and on the shores of every island without exception. They were nowhere in large numbers in any one place, but they were dotted about everywhere in ones and twos, and occasionally we saw small parties.

The Turnstone, I find, swims about a great deal. At Cherbaniani I passed three small birds swimming about merrily just outside the breakers, outside the atoll. I shot two, and after much trouble (as we dared not take the steam launch too close to the breakers, as huge rollers were coming in) succeeded in securing them. I made sure that they must be Phaleropes, and was naturally vastly disgusted at finding they were merely Turnstones. Subsequently we repeatedly saw them swimming about in similar localities—never in the still lagoons. They rose out of the water with the greatest ease, took short flights, and dropped down again into the sea, in which they appeared to be perfectly at home. I have seen many Turnstones before, but never saw them thus affect the water.

861.—Dromas ardeola, *Payk.*

We only once met with this species in the group, and that was at Pere-Mull-Par, where we saw a small flock of ten or a dozen individuals.

877.—Numenius lineatus, *Cuv.*

A rare bird in the islands. We altogether saw (and shot) two—one at Cardamum, the other at Aucuttee.

878.—Numenius pheopus, *Lin.*

This Whimbrel is decidedly less rare than the Curlew, we shot it at Kiltan, Amini, and Betra-Par, and probably saw not less than six or seven from first to last.

881 *bis.*—Tringa crassirostris, *Tem. and Schl.*

I only once met with this species in the Laccadives; a single pair at Betra-Par; I did not shoot either, but I am familiar with the species, of which I procured numbers in the Kurrachee harbour. I examined this pair with binoculars from a distance of about 100 yards before trying to get at them.

888.—Calidris arenaria, *Lin.*

I saw and shot a pair of Sanderlings at Betra-Par. I never met with the species anywhere else in the group.

A female measured:—Length, 8″·0; expanse, 15″·3; tail, from vent, 2″·0; wing, 5″.0; tarsus, 1″·0; bill, from gape, 1″·0. Bill, legs, and feet, black.

893.—Tringoides hypoleucos, *Lin.*

This was, next to the Turnstone, the most common shore bird. It was not numerous anywhere, but we saw, one, two or three at Betra-Par, Kiltan, Cardamum, Amini, and Pere-Mull-Par. I do not suppose, however, that there were one-tenth of the number of common Sandpipers that there were of Turnstones. They were not *plentiful* everywhere as they are at the Andamans and Nicobars.

894.—Totanus canescens, *Gmel.*

We never but once saw the Greenshank in the Laccadives, and this was at Cardamum, where, after some trouble, for it was very wary, I stalked and shot it.

923.—Ardea cinerea, *Lin.*

We saw several specimens of the Common Heron at the little uninhabited islands, Bingaroo and Tingaroo of the Aucuttee atoll (and here I suspect it breeds, as on two or three of the trees were stick nests that belonged obviously to some species of Heron), but we never saw it elsewhere in the group.

928.—Demiegretta gularis, *Bosc.*

I saw one single specimen, of this Blue Heron at Betra-Par, but did not meet with it elsewhere in the Laccadives.

I have already (Vol. I. p. 254) given full dimensions of the normal blue-grey or slatey specimens of this species obtained at Kurrachee. A snow-white example, a female, shot in the Bombay harbour, and which is absolutely structurally identical with slatey blue birds of the same sex, measured:—

Length, 24″·1; expanse, 38″·0; tail, 3″·8; wing, 10″·2; tarsus, 3″·8; mid toe and claw, 2″·91; bare portion of tibia, 2″·0; bill from gape, 4″·2. It weighed 1 lb.

The irides were bright yellow; the upper mandible, deep wood brown; the lower mandible, dull yellow; lores, slightly greenish yellow; orbital space, more hoary; feet, yellow; legs, blackish olive; base of tarsi and patches on both tarsi and tibiæ, greenish yellow.

Although killed on the 2nd February, the crest was fully three inches long, the interscapulary plumes, disintegrated and extended to the tip of the tail; and the pectoral plumes elongated and lanceolate.

This species has now been observed by me at Muscat on the Arabian Coast, all along the Mekran Coast from Gwader, at Kurrachee, at the western extremity of Kattiawar, at Teetul, at Bombay, at the Laccadives (where I only saw a single specimen) at various points along the west coast and round Cape Comorin to Tuticorin, and I have received a specimen shot by my former Collector, Mr. Theobald, in the Tinnevelly District. I have not the least doubt that it is this species that occurs in Ceylon. On the other side of Muscat it occurs along the whole Arabian coast, the whole western coast of Africa from Suez to Mozambique, in the Comoros and Madagascar, and reappears on the East in Senegambia and the Gold Coast.

As has often been noticed, the remarkable fact of the adults wearing some of them a dark slatey and some of them a pure white livery, and that too, without any reference to sex or season, is common to other species of *Demi egretta*, e.g., *sacra* of Burmah, the Andamans, and Nicobars, and the entire Archipelago, including Australia and New Zealand, and *rufa* and *cærulea* of America.

I have already discussed this question in its relation to *sacra* (Vol II, p. 304) and have nothing to add of my own experience, but I have found some very interesting facts in regard to this allotropism in the present species in Heuglin's great work on the Ornithology of North-East Africa to which I would draw attention.

Heuglin remarks that specimens occur (1) varying from ash to deep slatey grey; (2) pure white, (3) pied grey and white, the latter, however, being only young birds, and the pure white being less common than the grey. Further that he has examined many nests and has found in the same nest half grown young of both sexes, some a dirty ash grey, and some white, more or less variegated with brownish grey, but that he has never met with nestlings either pure white or deep slatey grey like old birds. The variegated birds change as time passes, some into normally coloured, some into white plumage, but no really old bird ever exhibits the spotted plumage.

This is exactly our experience at the Andamans and Nicobars of *D. sacra*.

It seems to me not impossible that both this species and *D. sacra* were originally white, and were derived from a stock whose natural feeding grounds were more inland and less exposed. It is quite conceivable that when they took to frequenting, *par*

preference bare dark rocks and reefs, their extremely conspicuous white plumage may have been in many ways disadvantageous to them. It would not only be that their enemies would more readily discern them, but that their prey also would be less likely to permit their approach. Any variation, therefore, towards a grey or dusky tint, such as a marked change in diet, might well produce, would be a distinct advantage to the individuals thus favored, and the descendants of these, if they retained this peculiarity, would be likely in time to supersede the original race. Dusky varieties would gradually gain ground and become the predominant forms as we now see them.

At the same time the variety does not even yet appear to have become well fixed, young white birds, spotted more or less with dusky, appeared to be common, and a certain portion of these revert later in life to the pure original type.

It is certain not only that the white birds in both species are far less common than the slaty ones, but also that they are far more wary; I have tested this myself dozens of times, so that *they* at least are conscious that there is something about them that makes it more dangerous for them than for the others to allow an enemy to approach. As a matter of fact you invariably notice these at a distance of a quarter of a mile, while you may row within twenty yards of one of the grey birds as he sits motionless amidst the dusky surf-beaten rocks without ever seeing it.

930.—Ardeola Grayi, *Sykes.*

We only met with the Indian Pond Heron on Amini and Cardamum, and there we only saw two or three examples.

931.—Butorides javanicus, *Horsf.*

We saw and shot a single specimen of the Green Bittern at Cardamum.

986 *bis.*—Sterna albigena, *Licht.* (Nomencl. Mus. Berol., p. 98.)

Firing into a crowd of small Terns, Dr. Armstrong killed two birds of this species, together with a number of lesser Terns at Cherbaniani reef, on the 13th February. Neither of the specimens were adult, and the lower surface has only a certain number of the feathers of the breast and abdomen a blue smoky grey; moreover, the forehead and greater part of the crown are greyish white more or less speckled with blackish brown; and, owing to the imperfect development of the black of the head, the white cheek stripe is only imperfectly marked.

Independent of the smoky grey under surface this species

is distinguishable from its three nearest allies—*Sterna fluviatilis*, Naum. (*S. hirundo*, Tem nec *L.*); *S. hirundo*, *L*, (= *S. macroura* Naum.; *S. arctica* Tem.; *S. paradisea*, Brün) and *S. longipennis* Nordm,—in the much darker grey of the upper surface; in its longer and slenderer bill, in the upper tail coverts almost uniform with the back, and in the almost entirely grey inner webs to the tail feathers.

This species has only hitherto* been obtained on the coasts of the Red Sea, northwards to about the twenty-fourth parallel north Lat. and southwards to the Gulf of Aden, where Heuglin tells us that it is more common on the African than on the Asiatic shore. It constitutes, therefore, an important addition to our Indian avifauna, the only one which our expedition yielded. We never saw this species on any other occasion.

Of two males, the dimensions were as follows, but I may note that of the second male the external tail feathers were undeveloped :—

Length, 14″·5, 12″·5; expanse, 29″·25, 29″·5; tail from vent, 6″·5, 4″·1; wing, 9″·9, 9″·7; tarsus, 0″·77, 0″·75; mid toe and claw, 1″·04, 0″·94; bill from gape, 2″·15; at front, from margin of feathers, 1″·55, 1″·47.

In both specimens the irides were deep brown; the legs and feet, Indian red, tinged in front of tarsi and toes with blackish dusky; the bill was blackish, with the extreme tips, whitish horny, and with more or less of a reddish tinge, as if it would turn red; gape and inside of mouth, deep red.

The lores and point of the forehead, white; the latter with a few black speckles; a patch in front of the eye, black speckled with white; the anterior half of the crown, white tinged earthy or brownish grey, and with spots and blotches of brownish black. Feathers immediately above the eye, all the feathers behind the eye, the sides of the head, occiput and nape, black; the posterior half of the crown blackish brown, a little mingled with greyish white; an imperfect white band from the lores beneath the eyes; and an imperfect black stripe below this.

The back of the neck, whitish; the feathers suffused with grey towards the tips; the whole of the back, scapulars, wings, tail, a moderately dark french grey, darker than in *S. bengalensis*, but not so dark as in some *Bergii*. The upper tail coverts, slightly paler; the wings, more silvery; but the outer web of the first primary and of the exterior elongated tail feather, much

* Long after this was written, Lord Walden announced in the *Ibis*. having procured specimens of this species from Bombay.

darker; the inner webs of the primaries, darker; the first primary with a considerable portion of the inner web, white to the margin; the other primaries also, with white on the inner web, but with a grey band on the margin.

The second and third tail feathers also a rather darker grey on the outer webs towards the points; the rest of the tail feathers, inner and outer webs, pretty well concolorous with the rump and upper tail coverts; the chin, throat, and sides of the neck, almost pure white, only a few faint dusky grey patches; the breast and abdomen, a dusky bluish grey, with many large patches of white; the lower tail coverts, greyish white; the wing lining, white.

In breeding plumage, according to Heuglin, the upper surface is a full bluish grey; the front and sides of the neck, breast, and abdomen, a somewhat paler and more purplish grey; the entire upper surface of head and nape, intensely black; the chin and upper part of the throat, the lores, and an oblique band beneath the eyes, conspicuously snowy white; the beak, coral red, blackish towards the base of the culmen and at the tips; the feet, bright coral red.

988.—Sternula minuta, *Lin.*

We shot eight or ten little Terns, on Cherbaniani reef, but observed them in no other part of the group.

I must humbly confess my inability to separate the little Terns into the several species that seem now-a-days accepted by many authors.* For instance, I have a Tern from Ceylon, which, Captain Legge assures me, was named *Sterna sinensis*, Gm. by Mr. Howard Saunders. I am unable to discover any constant points of difference between this specimen and numerous specimens from various parts of India, Burmah, the Laccadives, England and Europe. Of course the bills vary very much in colour, but I take that to be a sign of age or season. In the young birds the bills will be brown, a little later they will be tinged with olive in the central portion, then the central portion will become an olive orange, then, when the bird is adult, the bill is sometimes yellow with a conspicuous deep brown tip 0·3 in length; others have it similarily tipped 0·2 and 0·1 in length, others have a mere brown spot at the extreme tips, others are all yellow.

Then the bills differ very materially in length and shape, some are decidedly more slender, others, both deeper and broader, some have the angle of the gonys pretty well marked, in others, this is not the case.

* I shall feel *greatly* indebted to all correspondents who will send me good skins carefully sexed and dated, of the little Tern from various parts of India, Burmah, and Ceylon.—Ed., S. F.

Then again, some have the entire rump, upper tail coverts and tail, pure white; others have the rump, grey, others the upper tail coverts also grey, while lastly, some have the entire tail, except the outer tail feather, also grey.

But I am quite unable to group these differences together in such wise as to permit of any specific separation, and I must, therefore, leave it to some one wiser than myself to decide whether our specimens obtained at Cherbaniani are veritable *minuta* or not.

I measured five specimens, 3 males and 2 females, very carefully.

The males varied as follows :—Length, 9″·5, 9″·2, 8″·6 ; expanse, 20″·5, 20″·5, 19″·6; tail from vent, 2″·7, 3″·1, 2″·35; wing, 7″·0, 6″·9, 6″·6; tarsus, 0″·68, 0″·7, 0″·65 ; bill from gape, 1″·65, 1″·67, 1″·45 ;

The females measured :—Length, 9″·25, 8″·5 ; expanse, 20″·0, 19″·5 ; tail from vent, 2″·75, 2″·4 ; wing, 6″·45, 6″·5 ; tarsus, 0″·67, 0″·7 ; bill from gape, 1″·5, 1″·6.

In all, the legs and feet were a dusky olive yellow, or dusky olivaceous orange ; the irides, deep brown.

The bill varied—in one, dusky olive browner at tips of mandibles and base of culmen ; in another, olive orange tipped and with basal portion of culmen rich brown ; in another, the whole bill was deep brown, slightly tinged with olivaceous about the middle portion of the mandibles.

The only sign of immaturity exhibited by this bird was the dusky slaty colour of the lesser wing coverts along the ulna and carpal joint.

989.—Sterna Bergii, *Licht.*

I have taken a good deal of trouble with these large Sea Terns of late years—see also STRAY FEATHERS, Vol. I, p. 283—and I am disposed to believe now that, admitting *Sterna pelecanoides*, King, to be distinct, it does not occur anywhere on our Indian coasts. I have procured numerous specimens from the coasts of the Persian Gulf and Gulf of Oman, Kurrachee, the Laccadives, Madras, the mouths of the Hugli, the Megna and Mergui Harbour, and Bopyin at the south of the Tenasserim Provinces. One and all appear to me to be referable to the same species. The males are generally rather larger birds, and have decidedly stouter and stronger bills than the females, but in the same sex the bills vary *inter se*. In some the ridge of the culmen is rounder than in others, as a rule it is very round and obtuse, but in one specimen it is distinctly carinated and every intermediate form occurs. Then again, the angle of the gonys is pretty strongly marked in some, while it is almost wanting in others. Again in both sexes, some specimens are slightly

darker, and others lighter in shade, and the wings too vary somewhat in length. I have given on a former occasion, "STRAY FEATHERS" *loc. cit.*, the dimensions of numerous specimens from the Sind coast and the Gulf of Oman. To judge from four specimens, two of each sex which I measured in the flesh at the Laccadives, these latter are somewhat smaller, but the birds are really not separable, and the difference in the size of the wings in these latter is due to the fact, that none of those which I happened to measure had the two longest primaries fully developed. The following are the dimensions :—

	Length.	Expanse.	Tail	Wing imperfect.	Tarsus.	B. from gape.	B. from front.	Weight.
Males	21″·	42″·5	6″ 7	12″ 7	1″·25	3″ 7	2″ 8	1lb
	19″·5	43″ 0	6″ 2	12″ 3	1″·2	3″·55	2″ 65	14oz
Female	20″·5	42″ 0	7″ 1	12″·7	1″ 3	3″ 35	2″ 5	14oz
	19″·75	42″·8	6″·5	13″ 0	1″·35	3″·35	2″ 6	1lb

A female that I did not measure in the flesh but which has the primaries fully developed, has the wing, 13·7; although the bill is only 2·5 at front. In all, the legs, feet, and claws, were black; the irides, brown; and the bill, pale wax yellow with a greenish tinge. In all, the forehead was pure white; and the entire crown white streaked with black; only the occiput and occipital crest being dull black; the feathers, in many specimens, being slightly edged with white.

In the breeding season, the entire crown, occiput, and occipital crest, become jet black, and the bill, a purer and brighter yellow.

I now subjoin a few leading dimensions of the series of specimens from various parts of the coasts of India :—

S. Bergii,		Wing.	Bill at F.	Tarsus.	Locality.
„	♂	14″ 6	2″·62	1″ 44	Gwader Mekran Coast.
„	♂	14″·5	2″ 72	1″ 36	„ „
„	♀	14″·3	2″·53	1″·28	„ „
„	♂	14″ 3	2″·6	1″·4	„ „
„	♂	14″ 55	2″·73	1″·4	Kurachee.
„	♀	13″·6	2″·5	1″·29	Laccadives.
„	♀	13″·7	2″·5	1″ 2	„
„	♀	*imperfect*	2″·45	1″ 23	„
„	♀	*do.*	2″·5	1″·3	„
„	♂	13″·5	2″·62	1″·26	„
„	♂	*imperfect*	2″·85	1″·29	„
„	♂	*do.*	2″·7	1″·29	„
„	♀	13″ 8	2″ 55	1″·27	„
„	♀	*imperfect*	2″·5	1″·3	„
„	♀	13″·7	2″·5	1″·22	„
„	♂	*imperfect*	2″·5	1″·37	„
„	?	13″ 65	2″·65	1″·33	Madras.
„	♀	13″·6	2″·47	1″·26	„
„	♂	15″.	2″·6	1″·25	Saugor Island.
„	?	14″ 2	2″·66	1″·33	Megna, Comilla.

S. Bergii		Wing.	Bill at F.	Tarsus.	Locality.
„	♂	14″·3	2″·55	1″·22	Mergui, Tenasserim.
„	♀	13″·2	2″·35	1″·24	„ „
„	♂	14″·3	2″·58	1″·25	Bopyin, south of Mergui.

I observe that Messrs. Finsch and Hartlaub (Central Polynesia, p. 216) and Baron Heuglin (Nord. Ost., Africka, p. 1436) unite with the present species, *Sterna pelecanoides*, King, and *poliocercus*, Gould. I am much disposed to believe that in this they are in error, and that Professor Schlegel, who separates these two, is correct.

I have, from the Society Islands, a Tern, which I consider to be *Sterna pelecanoides*. Its dimensions are as follows:—Wing, 12″·7; bill at front, 2″·05; tarsus, 1″·1. It will be seen how these dimensions contrast with those above given of twenty-three specimens of *Bergii*.

Besides this difference in size, the colour of the upper parts is *markedly* paler than in 19 out of 20 *Bergii*, and is *somewhat* paler than even the most exceptionally pale *Bergii*.

As for *poliocercus*, Gould, I cannot see how any doubt as to its distinctness can arise; a peculiarly fine male in full breeding plumage from Port Lincoln, South Australia, measures—wing, 13″·3; bill at front, 2″·27; tarsus, 1″·0.

By the comparatively small tarsus, by the much slenderer and more compressed bill, by the uniformly pale tint of the tail with the whole of the outer tail feather white, except only a little grey powdering on the inner web just at the tip, *poliocercus* appears to me to be clearly distinguished from both *Bergii* and *pelecanoides*.

I take this opportunity of noting my inability to comprehend how Messrs. Finsch and Hartlaub consider it correct to unite *Sterna longipennis* of Nordmann (which I may mention occurs upon our Indian coasts) with *Sterna frontalis*, Gray.

The true *longipennis* as I understand the species is very close to the *Arctic* Tern, *Sterna hirundo*, but has a slightly longer wing, a slightly stronger bill, which is black at all ages, and a tarsus intermediate in length between that of *S. hirundo*, the Arctic Tern, and S. *fluviatilis*, the common Tern.*

* As to the differences between these two species Mr. Dresser remarks:—[Birds of Europe:—

"The adults of these two birds are not difficult to recognize when in full plumage, and the present species (*fluviatilis*) may always be known—(1) by the black marking on the bill near the tip; (2), by the stronger foot and longer tarsus, measuring at least 0·7 inch; and (3), by the wings reaching beyond the tail. In the adult Arctic Tern the bill is entirely coral-red, the tarsus only measures 0·55, *and the tail reaches beyond the wings*; hence the name of *macroura*, which it sometimes goes by. The young birds are rather more difficult to separate, but may be distinguished by the following characters:—*viz.*, by the amount of black on the inner web

Sterna frontalis, on the other hand, is an immense Tern with a bill about 1·7 at front, a wing of over 11″·0, and a total length in fine specimens of over 16 inches; the bird must weigh fully half as much again as *longipennis*; the large species, *frontalis*, does not, so far as I am aware, occur within our limits, whereas, *longipennis*, as I have already mentioned, certainly does.

In regard to the present species, *Sterna Bergii*, I note that we saw an enormous flock of it at Pere-Mull-Par, a small flock at Cherbaniani reef, and a single specimen near Bingaroo in the Aucuttee Atoll. At Pere-Mull it very probably breeds, but the only breeding place of this species, within our limits of which I yet know for certain, is the rocky island of Astolah, which lies off the Mekran coast opposite Jask, a short distance beyond the boundary of Sind.

On this island this species breeds in vast numbers in the early part of the monsoons. A boat sent to this island for me by Captain Wise on the 1st June, brought back no less than 3,000 eggs of this species, and the men said that they had not half robbed the rocks. The eggs of this species have been remarkably well figured in a paper by Baron K. Köing Von Wart-hausen, *Ibis* 1860, pl. V., fig. 4 to 8. by Heuglin from eggs taken by himself, and there is also another good figure of the egg in his Ornithologie Nordost. Afrikas, pl. L., but excellent as these figures are, they fail to convey an adequate idea of the extraordinary diversity, in colouration and markings, of the eggs of this species, though Wart-hausen's remark that in some the markings recall those ot the finest eggs, of *Uria troile*, gives a good idea of one type at any rate of these surpassingly handsome eggs.

The eggs are typically broad ovals, strongly pointed towards the small end, but considerably elongated, varieties are not uncommon. The shell is strong and compact, but entirely devoid of gloss. The ground colour varies from white, greenish and pinkish white, to pale buff, pale yellowish, and again pale pinkish stone colour, to the richest and warmest salmon pink. The markings are of two colours,—an intensely deep burnt sienna brown, often quite black in its intensity, and a pale inky purple, which has an appearance of lying beneath the surface of the shell. In some eggs, the inky purple markings are almost entirely wanting; in others, they are almost more numerous and extensive than the dark ones. In some eggs these dark

of the first primary (which is both darker and broader in the common Tern), and above all, by the short tarsus of the Arctic Tern (which fully applies to all birds, even the nestlings). Although the common Tern never attains to the entirely crimson bill of the adult Arctic Tern, yet in the young birds the base of the under mandible, shows more of an orange red colour, than the immature birds of the other species, which has the bill more or less black."

markings are comparatively thinly sprinkled; in others, they are very dense. In some eggs, they are huge blotches and spots, and in these eggs the markings always predominate about the large end, where in some eggs there is a broad zone, in others, a huge more or less mottled cap. In other eggs the markings are almost entirely hieroglyphic-like lines, and in these eggs there is rarely any conspicuous cap or zone.

Of 25 eggs which reached me, no two were very closely alike, and for variety and richness of colouring, they surpass as a body, the eggs of any species with which I am acquainted.

In length they vary from 2″·3 to 2″·71; and in breadth, from 1″·63 to 1″·78; but the average of two dozen was 2″·45 by 1″·71.

990.—Sterna bengalensis, *Less.* *See also S. F., Vol. I. p.* 284.

Of this species also we saw a large flock at Pere-Mull-Par, and a few individuals at Cherbaniani, but we met with it nowhere else.

All the specimens obtained were in winter plumage, the entire forehead and lores pure white; the crown, white; each of the feathers centered with a larger or smaller dot of blackish dusky; and the occiput blackish dusky; the feathers margined with white only; a spot in front of the eye and a broad black line from behind eye joining into the crest along the base of the occiput, with the whole of this latter, velvet black.

A female measured:—Length, 15′·0; expanse, 35″·25; tail from vent, 5″·7; wing, 11″·3; tarsus, 1″·0; mid toe and claw, 1″·05; bill from gape, 2″·6; at front from margin of feathers, 1″·93; weight, 8 ounces. The bill was pale orange, paler towards the tip; legs and feet, black; the soles of feet and lower surface of toes, dull orange.

I have hitherto failed to discover any breeding place of this species (numerous as they must be) within our limits.

992.—Sterna anosthætus *Scop.*

We found the Panayan Tern in enormous numbers at Charbaniani Reef, but did not meet with it elsewhere; we shot about 50 specimens, and preserved half this number. There were one or two young birds amongst them, in which a more or less light wood brown takes the place of the grayish smoky or sooty brown of the adult in winter plumage, but all the rest were adults in winter plumage; on dissection they shewed no signs of breeding, and not one single specimen shewed any traces of the breeding plumage. The dessicated examples of adults that we picked up in the Vingorla rocks were, of course, in breeding plumage.

I do not find it anywhere noticed that the winter and summer plumage of this species is very distinct. In fact, as far as I can make out, the winter plumage is generally described as that of the young. Generally also the descriptions that I have seen are not wholly satisfactory. Dr. Jerdon's, I am afraid, I must call eminently unsatisfactory and he is quite wrong as to the colors of the soft parts.

He says:—"Bill, dusky reddish, red towards the base of the lower mandible; legs, coral red." As a matter of fact, alike in summer and winter plumage, the bill, legs, feet, claws, and webs, are all black.

The birds are in full breeding plumage in May. I will describe a specimen caught at Sea, some 60 miles north of Madras, on the 7th May.

♀ Length to end of outer tail feather, 14″·75; expanse, 29″·0; tail from vent, 7″·0; wing, 9″·62; tarsus, 0″·75; bill from gape, 1″·95; at front from margin of feathers, 1″·6; mid toe and claw, 1″·15; bill, legs, and feet, black; irides, deep brown.

A frontal band, about 0·17 broad, extending backwards over the eyes for about 0·15 behind the posterior angle of the eye, pure white. A broad black stripe through the lores to eyes and behind the eyes joining the black of the occiput; the forehead and crown inside the white band, the entire occiput and nape, velvet black, not fuscous black as Finsch and Hautlaub and Heuglin and others give it. The entire chin, throat, cheeks, and sides of the neck, wing-lining, axillaries, lower tail coverts, and edge of the wing along the carpal joint and along the ulna, pure white; breast, abdomen, and flanks, white, delicately shaded with pale French grey; back of the neck, white, shaded delicately with grey; back, wings, tail, a smoky or sooty brown; the upper back, strongly shaded with bluish grey, as are also some of the tail feathers; the lesser coverts along the ulna, just inside the white edge, blackish brown; the primaries, a darker brown; their shafts, brown on the upper surface; the outer web of the first primary, almost black; the primaries greyish white, on their inner webs, towards their bases; the outer and longest tail feather, white for the basal half on both webs, greyish brown on the inner web for the terminal half, and with a corresponding greyish brown streak along the shaft on the outer web.

The other tail feathers greyish white on the inner webs at their bases. There is more or less of a slaty grey shade on the tail feathers and the longer scapulars.

In the winter plumage a number of males varied as follows:—Length, 13″·4 to 15; expanse, 30″·0 to 30″·5; tail, 5″·0 to 6″·2; wing, 9″·4 to 9″·9; tarsus, 0″·8 to 0″·85; bill from gape,

2″·0 to 2″·1 ; bill at front from margin of feathers, 1″·6 to 1″·75 ; weight 4 to 5 ounces.

In all, the bill, legs, feet, were black ; the irides, deep brown.

In the winter plumage the entire under surface is pure white, and wants altogether the delicate grey shade on the lower surface. There is a small dark spot in front of the eye, but the eye stripe, through the lores, is either wanting or only faintly indicated by a dusky speckling. The entire forehead is white; the crown is white or faintly greyish white; the feathers with central blackish specks, spots, or stripes. In some specimens, these are excessively small, mere specks ; in others, they form conspicuous centres to the feathers. The feathers of the occiput are somewhat similar, but they may be more properly described as black, more or less broadly bordered with white.

At the base of the occiput is a dull black collar extending on either side round the occiput nearly to the eye ; below this, the back of the neck is mingled white and pale smoky grey ; the feathers being white at their bases and smoky grey towards their tips. The rest of the upper plumage is much as in the summer plumage, but the brown is not so pure a color, there is much less, often, no white, on the outer tail feathers and the scapulars and in the scapulary region, and often the upper tail coverts are broadly or narrowly margined or fringed at the tips with white. The amount of this fringing or tipping varies in every individual.

In the young birds, killed at the same period, the nuchal collar is a sort of wood-brown, and so are the scapulars, greater, and median coverts, tertiaries and secondaries, there is not a trace of white anywhere on the outer web of the exterior tail feather, and both on the rump and upper tail coverts, the brown, is more of a dull earthy brown, and less of a grey smoky brown than in the adult in winter plumage.

When, as already mentioned (*supra*. p. 420,) I visited the Vingorla rocks, on the 4th February 1875, I found all the higher parts more or less thickly clothed with coarse dry shaggy grass, which sprouted out of every nook and cranny, and had, moreover, established itself over every little plateau or tiny table ground where the decay of the rock, and the Guano of the numerous sea birds that frequent these rocks at the breeding season had spread a thin sheet of mould.

Everywhere in amongst this grass, were thousands of addled and rotten eggs, mostly broken and weather beaten, but a very few of the smaller of the two kinds, retaining their original colours tolerably well. What species the large eggs belonged to I cannot guess, there were very few of them, and all were much broken.

They clearly belonged to some Gull, and were, I think, larger than those of *Sterna Bergii* which I have from Astola. In regard to the smaller species, there could be no doubt, scores of dried-up mummies of the young birds and several nearly perfect dried-up skins of old ones of our present species lay about. I dare say, I saw the remains of more than 100 young and old ones; and all belonging to this same species; not a single remain did I find of any other species; I have, therefore, not the smallest doubt that the few eggs which I was able to bring away also belonged to this species. No doubt they are much too small compared with the eggs figured in Finsch and Hartlaub's Ornithology of Central Polynesia, but they agree well enough with Gould's dimensions (Birds of Aus., Vol. II., p. 411,) and those given by Heuglin (O. N-O. Afr., p. 1,456.)

The eggs are of the usual Tern shape, perhaps a trifle more elongated than usual, shewing a considerable tendency to be pointed towards the small end. The ground colour appears to have varied through different shades of buffy greenish and pinkish stone color, and they are rather profusely spotted, blotched, and speckled with darker and lighter shades of purple or greyish lilac. The eggs are not in a really good condition, and have lost all gloss (if they ever had any) so that I cannot be quite sure of the colors.

The eggs, I have preserved, vary from, 1·68 to 1·82 in length, and from 1·2 to 1·22 in breadth.

992 *bis.*—Sterna fuliginosa, *Gm.*

I have already described this species, S. F., Vol. I., p 440. We found it breeding in enormous numbers at the Cherbaniani reef, but when we visited the place, about the middle of February, almost all the eggs were hatched off and the reef was swarming with myriads of young birds *vide supra.* page 429, from one to I suppose twenty days of age.

The following are the dimensions of three fine adults that I measured in the flesh:—

	Length.	Expanse.	Tail.	Wing.	Tarsus.	Bill from gape.	Bill at front.	Weight.
♂	17″·75	35″·25	7″·7	11″·8	0″·9	2″·4	1″·7	8 oz.
♀	16″	34″·5	6″·7	11″·5	0″·93	2″·35	1″·65	3 oz.
♀	16″·1	32″·5	6″·	10″·65	0″·89	2″·3	1″·6	3 oz.

Irides, deep brown; bill, legs, and feet, black or blackish with a dull purplish tinge.

A nestling, perhaps two days' old, has the chin, throat, breast, abdomen, greyish white; the whole of the rest of the body and head, white and buffy white, speckled and streaked and spotted with blackish dusky. One a few day's older, and, probably double its weight, is similar, but it has a certain number of feathers dusky with narrow white tips on the upper back, and most of

the lesser scapulars have appeared, blackish brown with broad white tips. A good deal older, almost completely fledged bird, with the primaries about two inches in length, has the entire upper surface, sides of the neck and breast, and upper abdomen, a deep sooty brown, almost black on the head and scapulars; all the scapulars and the longest tertiaries, and the tail feathers, tipped with white, and those of the interscapulary region and all the wing and upper tail coverts, tipped with rufescent buff. The colour of these tippings, however, varies greatly; being in some, all white, in some, all buffy or rufous buffy, but in the majority, as in the specimen described. The feathers, immediately above and behind the eye, are in this specimen still those of the nestling, dusky speckled with buff, or pale buff speckled with dusky; the middle of the throat, greyish white, as are also the centre of the abdomen and vent; flanks and lower tail coverts, ashy, tipped with pale rufous.

The eggs of this species are very variable, both in size, colour and markings. Typically they are moderately elongated, rather regular ovals, somewhat pointed, as a rule, towards the smaller end, but some are of the ordinary hen's egg shape, and a few are markedly elongated.

The shell is very fine and compact, but has no gloss. The ground colour varies from white, to pinky white, and from this latter, to a yellowish pinkish stone colour. The primary markings consist of large blotches, spots, streaks and specks, of a very rich brown, which on the pinkish eggs, is often decidedly red, and on the rest is a sienna brown, (burnt or raw). The secondary markings, which look more or less as if they were beneath the shell, consist of spots and blotches of pale purple, lilac, purplish brown, or grey, the shade varying in different specimens.

The extent and character of the markings vary much. In some eggs, all the markings, are small and spotty, in others, the majority are large and bold; in some, they are scattered evenly over the whole egg, in the majority, they are most numerous about the large end; in some, the markings are pretty densely set, in others, they are very sparse.

In length the 23 eggs, I was able to preserve, varied from 1″·86 to 2″ 03, and in breadth, from 1″·26 to 1″·45, but the average of the lot is 1″·96 nearly by 1″·34

992.—Anous stolidus, *Lin.*

We found this species breeding in great numbers on the Cherbaniani reef, but saw it nowhere else in the group. When we visited the reef in the second week of February the birds had only just begun to lay and we only procured a few quite

fresh eggs. Of the numbers we procured, only one was a young bird, all the rest were in full breeding plumage. The following are the dimensions of two males and two females measured in the flesh. The dimension of the males being the first two of the four given:—

Length, 16″·5, 15″·75, 15″·9, 15″·62; expanse, 33″·2, 33″·75, 31″·75, 32″·0; tail from vent, 6″·35, 5″·8, 5″·9, 6″·0; wing, 10″·8, 10″·5, 9″·9, 10″·45; tarsus, 1″·05, 1″·0, 0″·99, 0″·95; bill from gape, 2″·3, 2″·4, 2″·3, 2″·25; bill at front from margin of feathers, 1″·7, 1″·76, 1″·68, 1″·65.

The irides were deep brown; bill, black, orange at the angle of the gape; the legs and feet were a dusky vinous purple: the webs, paler and more dove colour; the claws, black.

In the full breeding plumage the general colour is a dull smoky somewhat chocolate brown: the primaries and their greater coverts, being much darker; the former in some specimens almost black. A spot immediately in front of the eye, black, this is prolonged forwards to the bill—sometimes occupying nearly the whole of the lores, sometimes as a narrow line skirting the white of the forehead; backwards it is prolonged along the upper eyelid, but is interrupted a little beyond the middle of the eye by a white spot on the upper eyelid; the lower eyelid is fringed with white; the whole of the forehead and crown is white, delicately shaded with pale french grey, sometimes with brownish grey; the margin of this, from the culmen to above the centre of the eye, is always purer white than the rest of the crown, and is sometimes a conspicuous white line abutting on the black of the upper portion of the lores—sometimes the crown and forehead are unicolorous, sometimes the forehead is conspicuously whiter and less grey.

The whole nape, back, and sides of the neck are more or less shaded with grey. In many specimens, a tinge of this same color pervades the chin and throat, and sometimes many of the feathers of the back and lower parts exhibit a good deal of this ashy shade, so that, even amongst breeding adults, some birds are altogether greyer, and others, altogether browner.

In the one young bird that we obtained, a bird certainly of the previous season, but which for some reason had not moulted into full plumage, the whole of the feathers except the quills and tail feathers were light earthy wood brown; the top and sides of the head are grey mouse brown, with only a very narrow greyish white line from the top of the eye to the bill, defining the black of the upper portion of the lores.

The three species of Noddy which have as yet been found within our limits differ sufficiently to permit of their being readily distinguished. These three as I at present identify them

are—(1) *A. stolidus*, Lin ; (2) *A. senex*, Leach ; (?= *A. tenuirostris*, Tem., Pl : Col : 202.) ; (3) *A leucocapillus*, Gould.

The following particulars will, I think, suffice to enable any one to distinguish the three species to which I refer :—

	A. stolidus.	*A. senex.*	*A. leucocapillus.*
Length ...	15″ to 16″	11″ to 12″·5	13″·5 to 14″
Wing ...	10″ „ 11″	8″ „ 9″·	9″ „ 9·5″
Bill ...	Rather stout 1·6″ to 1″ 75 at front	Much slenderer 1″·6 at front.	Slenderer and straighter 1″·9 2″·2 at front.
Lores ...	Blackish.	Grey or mouse brown.	Blackish.

I may mention here that I have no doubt that the White-headed Noddy, described by Jerdon as *Anous tenuirostris* with the bill 2″·12 at front, was really *leucocapillus*, Gould.

The specimen in the Indian Museum, No. 1,716, entered as *tenuirostris* and from the mouth of the Ganges, is also clearly I think *leucocapillus*. It has a bill nearly 1·9 in length and blackish lores ; the other Madieran specimen is too dilapidated to enable one to offer any opinion.

The true *tenuirostris* as, Teminck's figure shews, has the bill almost exactly as long as the head, measuring from the point of the feathers on the forehead, to the tip of the bill and from the same point to the occiput. Measuring in this way, I find that in the species which I identify as *senex* the bill measures 1·6 and the head 1·5. Measured in the same way *leucocapillus* has the head 1·55, and the bill 2·1 Both these species have comparatively slender bills, but the much greater length of that of *leucocapillus* separates it at once. Again from *stolidus*, *senex* is at once separated by the absence of the black or blackish lores by its much smaller size and slenderer bill.

There is a fourth species that might well occur, but of which I have never yet seen specimens obtained within our limits, *viz* :—

Anous melanops, Gould.—This seems to be much of the same size as *tenuirostris*, Tem., which I identify as *senex* of Leach, but differs in the conspicuous black crescent in front of the eye and black patch behind the eye, and in this respect exactly resembles *leucocapillus*.

Note that in *melanops* the bill is about 1·7 in front, and the wing about 7·5.

The few eggs of our present species (*A. stolidus*) that I secured were barely, if at all, separable from those of *S. fuliginosa*, except that they seem to average somewhat larger, (contrary to what Mr. Gould says, Hand. B. of Aus., pp. 410

and 416) and to be somewhat more elongated in shape and more richly colored.

I only secured eight, and these are all more elongated and more decidedly pointed than the great majority of the *fuliginosa* eggs.

The markings, too, in some specimens are perhaps somewhat more brightly coloured than in any of the eggs of this latter species, but with this exception the description already given of the eggs of the one will answer perfectly for those of the other.

My specimens varied in length from 1·9 to 2·25, and in breadth from 1·33 to 1·46, but the average of eight is 2·08 nearly by 1·38.

996—Phaeton ætherius, *Lin.*? P. indicus, *Sp. Nov.*

We procured a specimen of this (or possibly a nearly allied) species near enough to Cherbaniani reef to necessitate its inclusion in the avi-fauna of the group.

At the same time we never once met with it amongst the islands.

As far as my experience goes, and I have shot many, these birds are not usually met with either in mid ocean or very near the coast. All down the west coast of India it is only in a zone between about 7 and 30 miles off the shore that they are at all common.

I have already, S. F., Vol I., p. 286, given full dimensions of 5 males and a female shot on the Mekran Coast, with a full description.

The following particulars refer to the specimen shot about 30 miles from Cherbaniani :—

♂. Length to end of ordinary tail feathers, 18·0; central tail feathers, 3 inches more; expanse, 38·5; tail to end of ordinary tail feathers, 4·75; wing, 11·5; tarsus, 1·15; mid toe and claw, 1·8; bill from gape, 3·4; at front, 2·35; weight, 1·5 lbs.

Irides, brown; bill, dull red; edges of both mandibles at commissure from point to gape, blackish brown; upper shelf of nostrils, and a line along junction of feathers and bill, on both mandibles dusky; claws and three longer toes as far as basal joint, and webs between them black; rest of feet and legs, cream color, with bluish tinge on tarsus.

This is the only species of *Phaeton* that I have seen or known to occur in the Indian Ocean anywhere near our Indian coasts or in the Gulf of Oman, or the Persian Gulf. Both *flavirostris* and *rubricauda* have, I know, occurred in the Bay of Bengal and about the Andamans and Nicobars, but I have neither seen nor heard of either of these in the localities above

alluded to. Both these species breed in the neighbourhood of Mauritius.

The present species breeds, I believe, on the Omara Headland of the Mekran coast and on the Island of Astolah; also as Heuglin tells us in the Red Sea in the Dahlak Archipelago and elsewhere.

Now I have shot and measured 14 specimens of this bird; all were of one and the same type; none had very elongated middle tail feathers; all ranged pretty much of a size.

I subjoin for purposes of comparison the dimensions of our Indian Ocean species as recorded by myself and Heuglin, and of the true *ætherius*, according to Brandt, Schlegel, Hartlaub and Finsch.

	P. indicus.		*P. ætherius.*		
	Humo	Heuglin.	Brandt.	Schlegel.	Hart, and Finsch
Total length to end of longest ordinary tail feather.	16″·83″ to 18″ 05	16″·42 to 17″ 52	21″ 38	...	20″·35
Longest ordinary tail feather	4″ 0 „ 4″ 75	3″·8	4″.38	5″ 21	5″·0
Central tail feathers	7″ 5 to 10″ 6	9″·87 to 12″ 01	17″·52	31″·35	21″ 9-30″·0
Wing	10″ 75 „ 11″ 8	10″ 95 „ 11″ 23	13″ 5	13″ 7	13″·15
Bill at front	2″·2 „ 2″·45	2″·2 „ 2″ 5	2″ 5	2″·61	2″ 52
Tarsus	1″ 0 „ 1″·15	1″·04 „ 1″·17	1″·3	...	1″·3

It seems to me very clear, whether we look to total length to end of ordinary tail feathers, to wings or central tail feathers, that ours is a very much smaller bird than the true *ætherius*.

It might have been said that my fourteen specimens were all young birds, but then Heuglin found them breeding repeatedly and some of these must be adults, and yet his dimensions agree perfectly with mine.

Then again Finsch and Hartlaub (Faun.. Central Polynesiens, p. 250), state that the old birds of *ætherius* are pure white, only the outer web of the first primaries and of the longest of the latest secondaries, the eye stripe and the basal portion of the shafts of the middle feathers, black. I have certainly seen thirty specimens of our Indian bird besides those that I have shot flying round about vessels in which I was, and passing by me within thirty to fifty yards; all were without exception variegated with black like the specimen I described, Vol I., p. 287. Again, it may be urged that all the specimens I saw may have been young birds, but Heuglin also says, and he has repeatedly found them breeding, and must, to judge from the tenor of his text, have seen hundreds of these birds, referring to F. and H.'s description of the old bird, "In this plumage have I never seen this Phaeton."

Taking all these facts together, it appears to me that I am quite justified in provisionally separating the species which

I have procured in the Indian Ocean and the Gulf of Oman, and which I fully described, *loc. cit.*, as *P. indicus*.

998.—Sula fiber, *Lin.*

We met with this species only twice during our trip—once at Cherbaniani, where I failed to obtain a shot, and once at Pere-Mull-Par, where I saw and shot a single specimen, a female.

This measured:—Length, 31·7; expanse, 62; tail, 8; wing, 16·1; tarsus, 2; bill from gape, 5·1; bill at front, 4·1; the irides were white; the bill creamy white with a bluish tinge in veins; the pouch, gape, lores, and orbital spaces, pale hoary greenish yellow; the legs and feet pale yellow, with a greenish tinge on tarsi; the claws white with a bluish tinge. The breast, abdomen, vent, and central lower tail coverts, axillaries, sides, flanks, a pure white; the whole of the rest of the bird a nearly uniform umber brown, only the feathers of the crown are just perceptibly, paler margined at the tips, and those at the base of the lower mandible and contiguous to the pouch are faintly speckled whitish; the longer lateral lower tail coverts are paler brown and tipped whitish; the primary, lower wing coverts, and the lesser ones along the edge of the wing are the same brown as the rest of the bird, but the rest of the lower secondary and tertiary coverts are pure white.

999.—Sula piscatrix, *Lin.*

As already noticed (*supra*, p. 450,) I saw a large flock of White Boobies which, I believe, belonged to this species near Pere-Mull-Par. I do not think that it could have been *cyanops*, because, as far I could make out, there was no black on the tails; in fact no black about them anywhere except on the ends of the wings. However, they were too far off to acquire any certainty about them; although I watched them with powerful binoculars off and on for fully an hour. Certainly they were Boobies and white; I myself have little doubt that they belonged to this species, but as *cyanops* is the common species in the Red Sea they may have belonged to this latter species.

I may note that both Dr. Jerdon and Mr. Blyth states that this present species is occasionally seen in the Bay of Bengal and the Indian Ocean, but I have failed to find a single record of any specimen of this species having been procured in the Bay of Bengal. *White* Boobies have unquestionably been seen, but no specimen, as far as I can discover, has ever been procured and identified, and there are several species of White Boobies. A young specimen supposed to belong to this species, was sent from the Maldives, and is now in the Asiatic Society's Museum, but I am not prepared to say that even this specimen has been correctly identified.

A. O. H.

Novelties.

Estrilda burmanica, *Sp. Nov.*

Male in breeding plumage, similar to amandava, *but upper tail coverts and tertiaries unspotted; abdomen pale saffron yellow, tinged with crimson; spottings of breast and wing coverts extremely minute; general coloring paler.*

I FIRST noticed this representative species amongst some birds sent me by Mr. Oates; the specimens were not good, and I had no series of the Indian birds with which to compare them. Dr. Armstrong has now brought a fine specimen, a male, obtained at Elephant Point near Rangoon, exhibiting the same peculiarities as those which I noticed in Mr. Oates' specimens. The following are the dimensions and colors of the soft parts of Dr. Armstrong's specimen as recorded by him in the flesh:—

Length, 4·2; expanse, 5·35; tail, 1·5; wing, 1·75; tarsus, 0·51; bill from gape, 0·33; irides, crimson; bill, deep red, blackish at base on the culmen of upper mandible; legs and feet, flesh color.

The chin, throat, breast, cheeks, orbital region, lores, and a line over the eye, crimson; the feathers of the breast and sides of the neck with minute subterminal white specks; abdomen, flanks, and vent, a sort of saffron yellow, most of the feathers partially washed with pale crimson; lower tail coverts, black; some of the shorter ones white at their bases and tipped with a pinky yellowish white; upper tail coverts, crimson, unspotted; head, nape, back, wings, a rather light hair brown; the median and lesser coverts with a few minute white spots.

It has to be noticed that the abdomen in the non-breeding plumage of the male *amandava* sometimes closely resembles in color, though it is less bright, the abdomen of the present species in breeding plumage, but when *amandava* has put on the crimson of the upper parts, the abdomen always becomes blackish brown.

Again, specimens in non breeding plumage of female *amandava* sometimes have the upper tail coverts entirely unspotted, but I have seen no instance of the upper tail coverts of the male in breeding plumage being absolutely unspotted. Further it has to be remarked that, judging from a large series, the larger wing coverts in adult *amandava* are never spotless. Lastly, none of my specimens of *amandava*—and

I have twenty-three before me now—at all approach *burmanica* in the minute and speckly character of the spottings.

I am not yet in a position to point out how the present species differs from *amandava* in the non-breeding plumage, or, how the females of the two may be discriminated.

Alcippe Bourdilloni, *Sp. Nov.*

Similar to A atriceps, *Jerdon, but with much stouter bill and tarsi and with the black cap entirely replaced by brown. Similar also to* poiocephala, *but smaller (wing, 2·4 against 2·7 inches, in* poiocephala) *with more robust bill, wanting the grey head, ear coverts deep brown and chin, throat, and breast, white. Similar to* A. nigrifrons, *Blyth but larger (wing, 2·4 against 2·2); bill more compressed at base, upper surface much less rufescent and no black on forehead.*

The above diagnosis will, I think, sufficiently explain the relation of this Travancore Quaker Thrush, first procured by Mr. Frank Bourdillon, after whom I have named it, with the Cingalese and other nearly-allied Southern Indian forms. I shall therefore only add dimensions and a description of a male shot at Mynall on the 9th February:—

Length, 5·6; expanse, 6; wing, 2·4; tail, 2; tarsus, 0·95; bill at front, from base of skull, 0·65; from gape, 0·69.

The upper mandible, deep blackish brown; lower mandible, pale whitish horny; the legs and feet appear to have been brown.

Lores, forehead, cheeks, entire crown, brown, becoming tinged at the base of the neck, with the rufescent olive brown of the back; ear coverts, blackish brown; back, upper tail coverts, and tail, almost precisely as in *poiocephala*, except that the tail is shorter than in this species; wings, a rufescent olive brown, not quite so rufescent as in *poiocephala*, with the inner webs of the quills hair brown; 5th, 6th, 7th quills almost exactly equal; 4th, a shade shorter; 3rd, 0·15; 2nd, 0·3; 1st, 1·0 shorter than the longest.

Tail very much rounded; exterior tail feathers, 0·8; next pair, 0·4; next pair, 0·2 shorter than the central ones; chin, throat, and upper breast, pure white; rest of lower parts, grey, tinged on sides, flanks, vent, and lower tail coverts with pale slightly ferruginous brown, but not nearly so strongly so as in *atriceps*.

The bill is very considerably deeper and more compressed than in *nigrifrons*, and it is altogether a larger bird.

Generally the upper surface more resembles *poiocephala*, the lower surface *nigrifrons*.

The Mountain Finches, *Montifringilla*, Brehm (1828), and *Leucosticte* of Swainson (1831) form a compact and well-marked sub-group amongst the true Finches.

At present, so far as I have been able to ascertain, seven valid species of *Leucosticte*, and five of *Montifringilla*, have been described, and I have now to add two new species to this second sub-group. Both these species were collected by Mr. Mandelli's people in or on the borders of Thibet to the north of Native Sikhim, and, being suspected to be new by that gentleman, were sent to me by him for examination and description.

In examining these birds I have had the advantage of Mr. W. T. Blanford's advice and assistance, who has already added one species to this group and who has paid special attention to it.

The species of these two genera which are known to me are as follows:—

(i)—*Leucosticte tephrocotis*, Swainson, F. B. A., II., 1831, p. 265, pl. 50.

(ii)—*Leucosticte griseinucha*, Brandt., Bull. Imp. Acad., St. Peters, 1844, p. 36.*

(iii)—*Leucosticte brunneinucha*, Brandt., Bull. Imp. Acad., St. Peters, 1841, p. 35.

(iv)—*Leucosticte hæmatopygia*, Gould, P. Z. S., 1851, p. 115.

(v)—*Leucosticte Giglioli*, P. Z. S., 1868, p. 579.

(vi)—*Leucosticte arctoa*, Pallas, Zoogr. Ross. As. II., 1831, p. 21.

(vii)—*Leucosticte Brandti*, Bonaparte. Consp., I., 1850., p. 537.†

(i)—*Montifringilla nivalis*, Lin., I., 1766., p. 321.

(ii)—*Montifringilla Adamsi*, Moore., P. L. S. T. 1858, p. 482.

(iii)—*Montifringilla Gebleri*, Brandt., Bull. Imp., Acad., St. Peters 1843, p. 251.

(iv)—*Montifringilla alpicola*, Pallas., II., 1831., p. 20.

(v)—*Montifringilla ruficollis*, Blanford, J. A. S. B., 1872, p. 66.

(vi)—*Montifringilla Blanfordi.*, Sp. Nov.

(vii)—*Montifringilla Mandelli*, Sp. Nov.

* Dr. Elliot Coues, in his Birds of the North-West (of America), treats this species as only a variety of *tephrocotis*.

† Besides these Baird has described two species, *L. campestris*, Coopere B. Cal. I, 1870-1863, and *littoralis*, Tr. Chic. Acad. I., 1869, p. 318, the former of which is considered by Coues, B. of N. W., p. 113, as being referable to *tephrocotis* proper, and the latter as agreeing sufficiently with the variety, as he considers it, *griseinucha*.

Montifringilla Blanfordi.

Closely resembles M. ruficollis, *but is slightly larger, has a much more massive bill, has one central and two lateral short black frontal stripes; the entire chin black; the back uniformly colored, devoid of striations; no white on the lesser wing coverts; more white on the later primaries; basal portions of lateral tail feathers blackish, or dusky, not pale grey as in* ruficollis.

Dimensions, from the skin:—Length, 5·75; wing, 3·8; tail, 2·3; tarsus, 0·7; hind toe and claw, 0·55; bill at front, 0·47.

The legs and feet are black; the bill in one specimen entirely black, in another with the greater portion of the lower mandible yellow; probably becomes entirely yellow in the winter like other species of this genus.

A broad frontal band, a patch over the eye, cheeks, and basal portion of ear coverts, pure white.

The lores and a narrow band at the base of the mandibles black; from the lores on either side a short black streak runs upwards towards the crown; from the base of the culmen a central black streak runs up across the forehead to the crown; the entire chin is black, and this is continued on either side as two short mandibular streaks; the throat, the middle of the breast, the vent, lower tail coverts, wing lining, and axillaries, white; the crown, fawn brown, becoming a rufous fawn on the occiput and nape; the ends of the ear coverts and the feathers of the sides of the neck and sides of the breast of this same rufous fawn color, forming an ill defined, but very distinct, demi-collar.

Sides and flanks more or less tinged, and intermingled with fulvous fawn; entire back, scapulars, and upper tail coverts a sort of fulvous fawn; the basal portions of the feathers when lifted, brown; the greater primary wing coverts, hair brown; the rest of the coverts, fulvous fawn, somewhat greyer on the lesser coverts and more fulvescent on the outer webs and tips of the secondary greater coverts; tertiaries similar, but centered with hair brown. Primaries and secondaries, hair brown; the outer web of the first primary, pure white; the second primary with a small patch of white on the outer web, just at the emargination and a narrow white margin on the inner web towards the base; the third similar, but with more white on the inner web; the fourth similar, but with the white on the inner web quite to the shaft; the next four with a broad white band across both webs, but the shafts running through this band, blackish. The third

and succeeding quills very dark brown towards the tips and tipped paler, the tippings becoming paler and more conspicuous as the feathers recede from the front of the wing

Central tail feathers, brown, broadly edged and tipped with fulvous fawn; the rest with blackish brown tips, margined with fulvous fawn, then a white band which becomes wider and wider as the feathers recede from the centre, and which runs down the whole of the outer web of the exterior feather on either side; the basal portions where not white, blackish, dusky.

It may give some slight idea of the much greater massiveness of the bill in this species if I note that the height of the bill in this species measured from the culmen to the posterior angle of the lower mandible is 0·47, while measured in the same way in *ruficollis* it is only 0·37; or again measured from the angle of the gonys to the base of the culmen it is 0·38 in this species, and 0·32 in *ruficollis*.

The next species is perhaps a rather aberrant *Montifringilla*, and will very probably hereafter be separated as a distinct genus. The wing is not so pointed; the tarsus is excessively massive, and the hind toe and claw also massive—the latter more curved than is usual in this genus.

Montifringilla Mandelli.

Orbital region black; lower surface pure white; upper surface grey brown; back streaked whitish and darker brown; rump white; lateral tail feathers, broadly tipped white; external nearly all white; greater portion of secondaries, dark brown; wing, 4·1.

Dimensions (*from the skin*) :—Length, 6·6; wing, 4·1; tail, 2·6; tarsus, 0·9; hind toe and claw, 0·57.

The legs and feet are black; the bill, yellowish horny, blackish dusky at tip (probably varies with season). The lores and the whole of the feathers round the eye, blackish dusky; this color, though somewhat paler, is continued backwards as a streak over the ear coverts. A narrow frontal band, continued backwards over the eye, to the nape, greyish white, purest in its posterior portion; the frontal band is not well defined, but passes gradually into the color of the head. The entire top and back of the head included within these stripes, a dull earthy brown. This is succeeded by a narrow ill-defined greyish-white collar, dividing the brown of the head from the brown of the interscapulary region; scapulars and entire interscapulary region

and lower back, a duller and greyer earthy brown than the nape; many of the feathers margined broadly with dingy white and with darker brown centres, and in some cases inner webs, giving a striated appearance to these parts; rump, white; upper tail coverts extending within one inch of the end of the tail, pale brown, with a fawny tinge obscurely tipped paler; tail rounded—external pair 0·5 shorter than central ones; four central tail feathers, dark brown, margined and tipped with brownish fawn color, and the greater portion of the webs of the central tail feathers overlaid with this same color. The rest of the tail feathers blackish brown at the bases, more and more broadly tipped with white as they recede from the centre, and the external pair entirely white except an oblique black patch quite at the base.

The entire lower surface, including the wing lining, and lower tail coverts, white, but with a faint fulvous grey tinge upon the breast; the ear coverts, grey brown; the winglet and primary greater coverts, dark brown; visible portion of lesser and median coverts, chiefly white, the brown bases of the feathers showing through; secondary greater coverts, hair-brown, tipped white, and broadly margined with yellowish white; tertiaries, hair brown, broadly margined and tinged on their outer webs with pale fawn colour, and with an ill-defined wedge-shaped whitish spot at the tip of each; the quills, hair brown; the first primary white on the outer web, except towards the tip, the next three primaries narrowly margined whitish on their outer webs, and with a good deal of white on the inner webs at their bases; the next four or five with a broad white bar across both webs towards their bases, only interrupted in each by the shafts. The primaries narrowly tipped with pale fawny brown; most of the secondaries white at their bases, then very dark brown, and tipped white.

Recently Described Species.

Republications.

Suthora daflaensis, *God.-Aust.*

I HAVE to publish another interesting bird from the Dafla hills, Assam, of the genus *Suthora*, closely allied to *S. munipurensis*,* Wald. and G.-Aust., described in the *Ibis* for 1875, p. 250. The difference between them is most marked on the

* S. F. IV., p. 216.

underside, the chin being grey in the Dafla bird, paling on the upper breast and belly to dull yellowish white; while in the Munipúr and Nágá species, the chin and throat are deep black, fading to grey on the breast, into the white of the lower tail coverts. There is also a marked difference in size, this new form being the smallest of the genus now known.

Above crown of head chrome-brown; back and rump, rusty olivaceous brown; tail very rich rusty brown, particularly near the base; frontal band, passing over the eye to the nape, black; a white circle round eye, with a moustachial streak passing down the side of the neck of the same colour; ear-coverts, grey, surmounted by a small streak of golden yellow; chin, grey; breast and belly, dull sordid white; under-tail coverts, white; flanks, grey; shoulder of wing, olivaceous; primaries, black, rufous at the base, forming a band, the outermost edged white; their coverts, black; secondaries, grey, edged rich rufous on the outer web, with a narrow white edging to the inner. Irides, dark brown; legs and feet, pale grey; bill, neutral grey.

Length, 3·25 inches; wing, 1·75, tail, 2·10, tarsus, 0·62; bill at front, 0·25.

Hab. The bamboo underwood of the forests at 5,000—7,000 feet, Dafla hills, and first obtained on the slopes of Torúpútú Peak in January.

These curious little birds associate together in large flocks, making an incessant sharp twitter. They are most active, flitting rapidly about the foliage of the bamboos, of which the underwood is principally composed. They were the most fearless birds I ever met with, perching on twigs within a couple of yards of one's head, so close that it was some time before I could fire at one without the certainty of blowing it all to pieces, and two specimens obtained I had to throw away. The bright-coloured top of the head, set off with its black coronal edging, is conspicuous as they fly and hop about the branches.—A. and M. N. H., January 1876.

Minla Mandelli, *God.-Aust.*

Above dark olivaceous; tail, brown; forehead, rufous, merging into the olivaceous brown of the top of the head; a white supercilium commences from above the eye, and extends to the neck, merging into some streaky buff and black feathers behind the ear-coverts; a black band surmounts the white one, but does not meet the black lores; ear-coverts, sooty; chin, throat, and upper breast, buffy white; sullied white on abdomen; flanks, olivaceous. Irides, dark red brown; legs

and feet, pale fleshy; bill, grey brown; feathers of the head, scaly.

Length, 5·55 inches; wing, 2·2; tail, 2·5; tarsus, 0·95; bill at front, 0·45 (measured in the flesh).

Hab. Nágá hills in forest at about 6,000 feet.

I have named this bird after Mr. L. Mandelli, who has so successfully worked the ornithology of the Sikkim hills, and who described in 'STRAY FEATHERS', July 1873 (p. 416), a very near ally of this species, viz., *Minla rufogularis* (=*collaris*.* Walden), of which I obtained several specimens in the Dafla hills last winter.†

Accentor Jerdoni, *Brooks.*

Bill, shorter, feebler and sharper pointed than in *A. strophiatus*, and not nearly so black. One specimen has the basal portion of the lower mandible, pale brown. Total length, 4·5 inches; wing, 2·54 to 2·62; tail, 2·3 to 2·54; bill at front, 0·35; tarsus 0·75.

This bird in mode of coloration strongly resembles *A. strophiatus*, yet it is very distinct, being altogether a paler, and less boldly marked species. The striation of the back is comparatively cloudy, and resembles that of *Pipasies arboreus*. The upper surface is a mixture of brownish grey and dark brown, and there is none of the warm rufous tint observable on the back of *A. strophiatus*. The rump and upper tail coverts, which are strongly streaked in *strophiatus*, are plain greyish brown, in our bird, with hardly the faintest streak perceptible. The anterior portion of the supercilium is whitish, as in *strophiatus*, but the remainder, instead of being deep rusty red, is merely warm buff or fulvous. Above the supercilium is a dark band on each side of the head, which is continued to the occiput; the crown of the head is brownish grey, mottled indistinctly with pale brown; the back is brownish grey, streaked with dark brown; ear coverts, dark slatey brown, slightly mottled with greyish white; a patch of pure grey, very faintly streaked with brown, between the ear coverts and bend of wing; from chin to upper breast, white, with small neat dark brown spots; below this white, a broad (¾ inch) pectoral band of rufous, not nearly so deep and bright as in *strophiatus*, and devoid of dark streaks; *strophiatus* sometimes has the pectoral rufous strongly streaked; rest of lower surface, dull whitish with the flanks tinged with brown; the latter, having also broad

* S. F., Vol. III., p 281.

† I am very decidedly of opinion that this supposed new species is *Proparus dubius*, Hume, Pro. A. S. B, May 1874, and S. F., II., 147.—ED., S. F.

cloudy brown streaks; lower tail coverts, pale brownish, with broad whitish edges; wings and tail, brown, of a much lighter shade than in *strophiatus*, and having pale brown margins to the feathers, particularly so in the case of the wing-coverts and tertials.

I have thought necessary to refer comparatively to *A. strophiatus* in this description, on account of the similar distribution of colours and size of the two birds. They can only be understood by contrasting them. I have one specimen of the new bird from Dhurmsala, and others from Cashmir. *A. strophiatus* ranges from near Simla to Darjeeling; but at what point west of Simla is its *western* limit, and where the *eastern* one of *A. Jerdoni* begins is not yet known. Captain Cock took some nests of the new bird with eggs (uniform greenish blue) at Sonamurg, up the Sind Valley in Cashmir.—J. A. S. B., 1872, p. 327.

Troglodytes neglectus, *Brooks.*

It is of the same size as *T. nipalensis*, but very much lighter in colour and having a strong resemblance to the English Wren. It is dull reddish brown above, becoming brighter in tone towards and on the tail. The whole of the upper surface is covered with wavey dark brown bars, which are very indistinct on the head, but increase in distinctness as the tail is reached, upon which they are very well marked; below, pale brownish, with the abdomen and belly, nearly white; the whole of the under surface, like the upper, being barred with brown; lower tail coverts, brown, spotted with white. Bill, brown, paler on lower mandible at base; legs and feet, brown. Length, 3·5 inches; wing, 1·8; tail, 1·2; bill at front, 0·42; tarsus 0·63; central toe and claw, 0·57; hind toe and claw 0·53. The sexes are alike in size and plumage.

Apart from its comparatively pale tone of colouration its much smaller and slenderer tarsus and foot easily distinguish it from *T. nipalensis*, which is a very dark brown sooty looking little bird. Of *T. nipalensis*, the central toe and claw, measure 0·7; hind toe and claw, 0 62.

The Cashmir Wren is not uncommon in the pine woods of Cashmir, and in habits and manners it strongly resembles its European congener. Its song is very similar, and quite as pretty. It is a shy active little bird, and very difficult to shoot. I found two nests, one was placed in the roots of a large up-turned pine, and was globular with entrance at the side. It was profusely lined with feathers and composed of moss and fibres. The eggs were white, sparingly and minutely

spotted with red; rather oval in shape; measuring 0·66 by 0·5. A second nest was placed in the thick foliage of a moss grown fir tree, and was about 7 feet above the ground. It was similarly composed to the other nest, but the eggs were rounder and plain white, without any spots.—J. A. S. B., 1872 p. 328.

Anorhinus Austeni, *Jerd.*, *Ibis.*, 1872, *p.* 6.

[I can find no satisfactory description of this species; Dr. Jerdon, says:]—"Its nearest ally is *B. Tickelli* of Tenasserim, but it differs conspicuously from that by its white-tipped tail feathers."

Major Godwin-Austen, who originally seemed to have identified it with *A. galeritus*, Tem. says:—

"The whole of the upper parts of a pale slaty grey, having in certain lights a greenish tinge; throat and sides of neck, white; dull rufous on the breast and belly, thighs and under-tail coverts primaries;" (and ? lateral tail feathers) "greenish black, tipped and barred white; a white spot formed by the tip of the outer wing coverts; the base of the primaries being also of this color; secondaries, edged whitish; tail, tipped white; centre feathers, same color as the back; bill, yellowish white. Length, about 31 inches; wing, 13; tail, 13; bill to gape, 4·5; depth 2."

[The inexplicable part of this business is that Mr. Gray is said to have considered this as perhaps the young of *Rhinoplax scutatus*, while Dr. Jerdon originally identified it with *galeritus*. It is impossible to understand how any horn bill, nearly allied to *Tickelli*, could be considered the young of *scutatus*.]

Prionochilus vincens, *Sclater.*

Male.—Length, 4″·15; tail, 1″·2; wing, 2″·3; tarsus, 0″·5; mid toe with claw, 0″·5; hind toe 0″·25; bill to gape, 0″·45, at front, nearly 0″·4. Third primary, longest, only slightly longer than second.

Description.—Iris, reddish; bill, upper mandible, black; lower mandible, lightish at the base; legs and feet, blackish brown.

Entire head (except the chin and throat), hind neck, back, rump, and lesser wing coverts, dull steel-blue, palest on the rump, and with the bases of the feathers, dark; quills, blackish brown; the basal portion of inner webs, with the under wing coverts, white; tertiaries, greater wing coverts and tail, black; —the former edged with the hue of the upper surface, the latter

with the three outer feathers, white towards the tip, the colour extending a little up the shaft on inner web,—the next two with a small terminal white spot; chin, throat and chest, white, below which, the under surface is saffron yellow; paling at the vent; under-tail coverts, white, edged pale yellow.

Female.—Length, 4″·1; wing, 2″·25; tail, 1″·1. Bill, slightly lighter in hue than ♂; legs, feet and iris, the same as ♂.

Head and hind neck faded bluish ashen; centres of feathers, dark; back, olivaceous brown; secondaries and wing coverts, brown, edged with olivaceous; quills, lighter than in the male; sides of neck and chest, ashy; beneath, paler yellow than the male, mingled with grey on the flanks; tail, brownish black.

Hab. Forests of the low hills in the Southern Province (Ceylon), where it affects principally the creepers which entwine the trunks of the trees, resorts also to small branches of low trees.

Food.—Seeds and pollen from the flowers of creepers—*Ibis*, 1874, p. 2.

Reguloides subviridis, *Brooks.*

I have, for the last six years, procured specimens of a *Reguloides*, which is not uncommon in the North-West Provinces during the cold weather. This bird I took to be *Reguloides viridipennis*, Blyth, as far as I could judge by the brief description given in Dr. Jerdon's work. Recently, I have had the pleasure of examining Mr. Blyth's type birds of this species and of reading his original detailed description of it in the Journal of the Asiatic Society, Vol. XXIV, p. 275; and I find it to be a species strongly resembling *Reguloides trochiloides*, Sundevall, but considerably smaller, and rather brighter coloured. I shall, therefore, name my hitherto undescribed bird as above.

Description.—Above, dull light olive green, with the rump and upper tail coverts a shade or two lighter, but not yellow white and abruptly defined, as in *Reguloides proregulus*; lower surface, dull albescent, tinged with yellowish; wings and tail brown; the primaries, secondaries, and tail feathers, edged with light olive green; and the tertials with broad whitish margins as in *Reguloides superciliosus*, but to a rather less extent. The greater or secondary wing coverts are brown, broadly tipped with dull yellowish white, which forms the *second* wing bar; the smaller wing coverts are edged with light olive green, but the lower, or last row, are tipped with dull yellowish white, which forms the upper or *first* wing bar. I need hardly observe that in all *Reguloides*, the first wing bar is very narrow, and the second one is very broad; the coverts of the primaries are

brown, of a darker shade than the quill feathers, and form a darkish patch beyond the second wing bar. The wing is thus, in its whole appearance, extremely like that of *Reguloides superciliosus*. On the crown of the head is a very distinct coronal streak, similar to that of *Reguloides proregulus*, and of the same dull yellow colour; the supercilium is yellow and brighter anteriorly; the cheeks are yellowish, faintly mottled with pale brown; a brownish streak passes through the eye; irides, dark brown, bill brown, and light yellow brown on lower mandible, except the tip, which is dark, as in the upper one; legs and feet, brown.

Length, 4 to 4·25 inches, according to sex; wing, 2·2 to 2·3 of the male, and 2·0 to 2·05 of the female; tail, 1·7 to 1·83 of the male, and 1·5 to 1·7 of the female; bill at front, ·3; tarsus, ·65 to ·7.

The 4th quill is generally the longest; 5th a shade shorter; 3rd shorter than 5th, and intermediate between it and the 6th; 2nd equal to 8th; but sometimes intermediate between 8th and 9th; the 4th and 5th are rarely equal; and still more rarely is the 5th the longest in the wing; the 1st quill is from 1·17 to 1·08 short of tip of wing; according to sex.

The general tone of colour is strikingly like that of *Reguloides proregulus*, Pallas, but paler and duller; and it differs from that bird in not having a yellow rump band; also in its more slender and much lighter coloured bill. From *Reguloides superciliosus*, Gmel., it differs in having the supercilium of a decided yellow, while that bird's is ruddy white or pale buff; and its cheeks are of the same colour, but duller, mottled with light brown. Our new bird's cheeks, on the contrary, have generally a strong yellow tinge; its coronal streak too is bright and well defined as in *Reg. proregulus*; while the coronal streak of *R. superciliosus* is seldom visible, and when so, is merely a faint brownish grey line on the dark olive brown head which can only be seen when looked at in certain lights. The indistinctness, or entire absence, of the coronal streak is one of the characteristics of *Reguloides superciliosus*. All the others, except *Reguloides castaneiceps*, have the coronal streak very distinct. In our new species, the plumage is very soft and lax; and, however, carefully the skin may be put up, the coronal streak gets disturbed and out of place.

Unlike the purely hill *Reguloides*, *R. proregulus*, *R. erochroa*, *R. maculipennis*, and *R. castaneiceps*, our bird is migratory, and frequents the plains of the North-Western Provinces during the cold season. The four species which I have just mentioned find the lower Himalayan hills quite warm enough for their winter retreat.

The call note of our species is peculiarly shrill, tinkling; weak, but quite Phylloscopine; a "*tiss-yip*," as expressed by Mr. Blyth. There is a greater rise between the 1st and 2nd notes of the call (the 2nd being the highest,) than there is in the call note of *Reguloides superciliosus* or of *Phyllopneuste trochilus*.

The song, which I have sometimes heard on their arrival, is a pleasant twittering but feeble one, and very like that of *Regulus cristatus*. I have procured *Reguloides subviridis* in the Etawah and Cawnpore districts, but I have no doubt it is generally spread over the whole North-West. In Kashmir I never met with it, although *R. proregulus* and *R. superciliosus* were abundant there.

It arrives in the plains about a month later than *R. superciliosus*, and while that species loves large and shady trees, our one seems to prefer those of light foliage, especially the Babool. With one or two exceptions, all my specimens were procured in Babool trees. The banks of the Etawah branch of the Ganges canal abound with these trees, and there this little bird is not uncommon. It is not an abundant bird like *Reguloides superciliosus*, but is comparatively scarce; and its peculiar and excessively shrill note enabled me to find the numbers I did. It only calls occasionally, and is as silent a bird as *R. superciliosus* is noisy.—*Pro. A. S. B.*, 1872, p. 148.

Notes.

In my concluding note to Captain Butler's paper on the Avifauna of Mount Aboo, &c., (see ante, page 40) I omitted to notice, as found along the coasts of Kutch and Kattiawar, No. 862.—*Hæmatopus ostralegus*.

Since this paper appeared I have received three specimens of 888.—*Calidris arenaria* from Mr. James, shot by him at Mandavee in Kutch. I have also received a specimen of 956.—*T. vulpanser* shot by this same gentleman on the last day of 1875, near Nowanuggur, Kattiawar.

Captain E. Bishop of the I. G. S. S. "Amberwitch," who recently sent me skins of *Dromas ardeola* from the Mekran Coast, informs me that in April last he saw flocks of this species as far north and west as Bushire, which is the nearest Persian port to Shiraz, and about 120 miles from the head of the Persian Gulf. He also mentions, a rather curious fact, that he has seen *Mergus castor* for three successive years at Chabour and Jask on the Mekran Coast.

WITH REFERENCE to my remarks at p. 480, Vol. III, as to a specimen of *Prinia Stewarti* sent me by Captain Butler, which exhibits a very conspicuous whitish line above the lores, I may notice that, having referred to my museum, I find that both *P. socialis* and *P. Stewarti* occasionally exhibit this same line more or less conspicuously. I take this line to be an individual peculiarity and not seasonal, as I have specimens killed in March, April, July, October, and November exhibiting it, while numerous other birds killed in the same and intervening months shew no trace of it. Out of forty specimens of these two species, now before me, about one-eighth shew it conspicuously and another eighth shew some traces of it.

I THINK it somewhat doubtful whether *Ruticilla nigrogularis*, Moore, P. Z. S., 1854, p. 29, and Jerd., B. I., Vol. II, p. 14, is a good species. The dimensions are admittedly the same as those of *R. schisticeps*, the descriptions also coincide, and Moore says that his species only differs from *schisticeps* in having the throat black instead of white.

Out of eight males now before me, manifestly all of the same species, three have a large white patch on the throat; in two there is only trace of the white; the others are intermediate. Out of five females, one has a large white patch, three have only small white patches, and one has no trace of this. It seems probable that the presence and absence of the white patch, on which Moore based the distinctness of his *nigrogularis* from Hodgsons *schisticeps*, is only a seasonal peculiarity.

AFTER EXAMINING numerous specimens of my *Horeites brunnescens* (*Ibis* is 1872, p. 109, "STRAY FEATHERS," Vol. III, p. 410.) I begin to suspect that this species may be identical with Hodgson's *Horornis fulviventris* (P. Z. S., 1845, p. 32, Jerd., B. I. II, 1862). I am aware that Blyth considered this latter identical with *Phylloscopus fuscatus*, Blyth (*Sylvia sibirica*, Middendorff,) but I am not sure that he had any very certain authority for this identification.

The dimensions of wing given by Hodgson, *viz.*, "not 2" are small for *brunnescens*, the wing of which in good specimens is about 2·2, and in his brief description he omits all reference to the very rufescent tinge of the upper parts. At the same time, unless Blyth's identification is correct, no one has yet met with the true *Horornis fulviventris*, and my bird is common in the localities worked by Hodgson (I have sixteen specimens of it), and it does not seem likely that it should have escaped him.

I have for years had specimens which I referred to *fulviventris*, Hodgson, one of them labelled by Jerdon *Horornis flaviventris*. This it certainly was not, and I referred it to *fulviventris*, but now that I have had an opportunity of comparing all my specimens, I see that my supposed *fulviventris* and my *Horeites brunnescens* are identical.

Whether *H. fulviventris*, Hodgson, is a good species, and if so, identical with my *H. brunnescens*, or whether it is, as Blyth considers, identical with his own *Phylloscopus fuscatus*, only an examination of the type specimens in the British Museum (if they still exist there), can finally enable us to determine, but in the meantime it may be useful to call attention to the matter.

It is worthy of note that Mr. Mandelli has lately obtained specimens in the Bootan Doars of *Dicæum olivaceum*, Walden, which will be found accurately described, S. F., Vol. III., p. 403. I have only to add that it differs from *D. virescens*, nobis, not only in the particulars noted by Lord Walden, but also in its much shorter bill.

At the page above quoted I reproduced Lord Walden's description of a new Ixos, *I. annectans*. Subsequently comparing this description with *Ixos Davisoni*, nobis, I cannot doubt that the two are the same species—the only difference being that I described from a very beautiful specimen, a perfectly adult male, while Lord Walden probably described from a younger bird. He fails to notice the narrow bright orange line over the lores, but this I find, after examining other specimens collected by Dr. Armstrong, is only apparent in really good skins. The bird will stand, I think, as *I. Davisoni*.

Mr. R. Thompson, Deputy Conservator of Forests, Chanda, Central Provinces, writes: "On the 27th of March, I shot, and indeed saw, for the first time, a specimen of *Harpactes fasciatus*. I found it in the Ahiri forests whilst going up a nullah fringed with lofty trees. This was after a heavy storm of wind and rain the previous day. I noticed the bird flying across the nullah, the flight so much resembling that of a *Dendrocitta*, that I at first supposed it to belong to that species. Presently the bird sat motionless, and I saw the peculiar position and bill of *Harpactes*, with the Himalayan species of which I am familiar.

I had only an express rifle, and was obliged to shoot it with this, bringing it down with one side blown to atoms, the other

all right; it proved to be a young female, moulting (?) from the nestling plumage."

I do not think that we have as yet any record of this species so far north as Ahiri.

Since this was written Mr. Ball has obtained this species in Radakole, or Rehrakhole, which is a good deal further north and much further east. Ahiri is about 19°30′ N. Lat. and 80° E. Long, while Rehrakhole is about 21°. N. Long. and 84° E. Long.

Mr. Mandelli has procured several specimens of *Passer montanus* in that portion of Thibet which is immediately north of Sikhim. They are noteworthy as being throughout of a duller and deeper tint than specimens from England, Japan, Java, Darjeeling, and Burmah. On the whole under surface the white is replaced by pale ashy grey; the head and neck is duller and more of a chocolate tint, and generally the colouring of the upper surface is somewhat deeper colour. It does not, however, appear to me that these differences are sufficient to justify specific separation.

Mr. Mandelli sent me for examination a goose that at first puzzled me a good deal. On further examination it turned out to be the young of *Anser indicus*, which has never, I think, as yet been described.

It differs altogether in the head and neck markings. The bill is as in the adult, yellow with deep brown nail; the legs and feet appear to have been a brownish orange; the forehead is brownish white a little tinged with rusty; there is a dusky line through the lores to the eyes; the whole crown, occiput, and nape is a sooty or dusky black; below this the back of the neck is wood brown, and the sides and front of the lower part of the neck, a pale dusky greyish, mottled with whitish, this being the colour of the tips of the feathers; most of the feathers of the breast and abdomen and lower parts generally have a pale rusty or fulvous tinge towards the tips; the conspicuous dark banding of the flanks is almost entirely wanting, only one dark greyish brown feather on each side having as yet made its appearance.

There is no trace of either the two distinct black head bars or of the conspicuous white neck streaks, so that the head and neck look strangely unlike those of the adult.

The tail is rather browner than in the old bird. The rest of the plumage is very similar to that of the adult, but perhaps everywhere less pure in colour.

I, SOME YEARS AGO recorded having obtained a specimen from Oudh, of a bird which Dr. Jerdon identified for me as *Luscinia major*, of Europe. Later obtaining specimens of this bird from Europe, I found that the Indian specimen was quite distinct. I then thought that it might be *Daulias Hafizi* of Severstov, which, *à priori*, was much more likely to occur in India. I submitted the specimen to Mr. W. T. Blanford, who informs me that it is close to *Hafizi*, but should, perhaps, more properly, owing to its larger size, be identified with *L. Golzii*, described from Turkestan by Dr. Cabanis, J. F. Orn, 1873, p. 79. According to Dr. Cabanis this species is structurally characterized by having the first or undeveloped primary a little longer than the primary greater coverts, by having the second primary a trifle shorter than the fifth (in my specimen they are almost equal), and by having the fourth primary decidedly shorter than the third.

The dimensions of my specimen taken from the skin are:—Length, 7″·5; wing, 3″·7; tail, 3″·5; tarsus, 1″·1; bill at front, 0″·65.

The type specimen Mr. Blanford mentions (Zoology of Persia, Aves, p. 171) measured—Wing, 3·8; tail, 3·32; tarsus, 1·15; and bill at front, 0·72.

These measurements agree sufficiently well, and the following is a description of my bird:—

Lores pale fulvous; forehead, crown, and the whole upper parts, except the wings and tail, a dull reddish brown, perhaps slightly redder on the head and paler on the rump; the tail feathers slightly brighter and less brown, more approaching to a dull chestnut or ferruginous.

The upper surface generally is decidedly more rufous than in *Daulias Hafizi*, as figured by Mr. Blanford, but the tail and upper tail coverts agree precisely with his figure. The whole of the lower parts are fulvous white, purest on the abdomen, and much suffused with brown on the breast; the sides and flanks are brown; there is a trace of a pale streak over and behind the eye; the ear coverts are mingled pale fulvous and brown. My specimen is a bad one, and I cannot be quite certain of these parts.

The wings are hair brown; the primaries and secondaries, the winglet and greater primary coverts all narrowly margined with pale somewhat rufescent olivaceous; the secondary greater coverts are more broadly margined and tipped with a paler shade of this same color, forming a noticeable paler patch on the wing; the tertiaries are much suffused with the color of the back; the wing lining and axillaries are white, with a slight fulvous tinge.

This specimen does not quite agree in all particulars with Dr. Cabanis' brief remarks, *loc. cit.*, but I do not think that any

sufficient difference exists to warrant its separation, at any rate until it can be compared with the type.

It was procured in the Oudh Terai in October 1865.

Mr. Mandelli has obtained specimens of *Stachyris ruffrons*, nobis, (S. F., Vol I., p. 479) in the Bootan Doars. This was in April last. His specimen agrees precisely with the type.

In the *Ibis* for 1871, p. 406, I described a Goat-sucker, new to our Indian avi-fauna, under the name of *Caprimulgus Unwini*. This was reproduced, "Stray Feathers," Vol. III., p. 407.

When I described the species, I had only one specimen of the European Goat-sucker, an English female, a very large and dark bird, as unlike my specimens of *Unwini*, as they could possibly be. Not long since I obtained from the Volga a Goat-sucker, labelled *C. europæus*, which seemed hardly separable from *Unwini*.

Mr. Blanford, in his excellent work on the Zoology of Persia, not having had an opportunity of examining my type, and having only my old meagre description before him, suggested that *Unwini* might be identical with *mahrattensis*. When recently he paid me a visit, I protested that this was out of the question, and gave him all the specimens to examine, telling him at the same time that my only doubt was, whether *Unwini* was distinct from *europæus*.

After examining the specimens, Mr. Blanford informed me that he had no doubt that *Unwini* belonged to the somewhat paler and more silvery race met with in Persia, and he added that, though possibly many of the Western European specimens were much darker and more rufous, he had seen European specimens, perfectly similar he believed to my bird.

The fact is, that *C. Unwini* bears precisely the same relation to *C. euroœpus* that *C. Kelaarti* does to *C. indicus*. It is a much paler, more silvery, and I should say, typically, or possibly ought to say on the average, slightly smaller race.

Those who mantain *Kelaarti* must also maintain *Unwini*. I myself believe in neither as specifically distinct, and should substitute for *C. Unwini*, *C. europœus* in our Indian lists.

I have only three undoubted specimens, all from Murree and the Agrore Valley, at the extreme north westerly corner of our Indian Empire.

One of these, though sexed a female by Captain Unwin, must, I feel now sure, have been a male, and this sadly misled me.

I have two other specimens, females, one from Sirsa in the Punjab, and one from Etawah, which either belong to the

present or to an undescribed species. Mr. Blanford inclines to this latter view, but until I am able to examine a really good series of European *europæus*, I shall not attempt to deal with these.

Major Godwin-Austen says, A. & M. N. H. July 1876 :—"I take the earliest opportunity in this paper to suppress the species (*Garrulax albosuperciliaris*) figured in the 'Journ. Asiat Soc. Bengal,' 1874, and described by me in the 'Proc. Zool. Soc.' for 1874," "(*vide* S. F., III., p 393.) "It is, I find, the same as *G. sannio*, Swinhoe. The only variation I noticed in the single specimen with which I have compared it, was a slight difference in the shade of coloration of the upper surface; this is one often seen in birds taken on the extreme limits of their range."

Dr. Jerdon, it will be remembered, says nothing in his great work, "The Birds of India," of ever procuring an adult *Larus fuscus* in India, but Mr. Blyth remarked (*Ibis*, 1867, p. 176) that Dr. Jerdon must have forgotton the adult specimen sent by him from the Bay of Bengal.

Dr. Jerdon himself later said that he could not remember ever getting any such specimen, but that if Blyth said so, he was doubtless right.

There is in the As. Soc. Museum a specimen of *Larus fuscus* which bears a label in Dr. Anderson's hand-writing, "Bay of Bengal, T. C. Jerdon, 1842." It is to be presumed that Dr. Anderson had good reasons for thus identifying this specimen; but it is notorious that not a few of the tickets had been changed and lost after Mr. Blyth gave up charge of the Museum, and had also got loose from their stands, so that one cannot rely too implicitly on this identification.

This specimen, it should be noted, is a lovely one. No one, I think, who has ever received many skins from Dr. Jerdon, will, for one moment, believe that he collected it himself; for it has all the appearance, even after these many years, of having been originally prepared, as well as subsequently mounted by a professional taxidermist. I have acquired in the course of years a certain technical knowledge of skins, and I believe this one to be European.

Again, if Dr. Jerdon really procured this in the Bay of Bengal, it is curious that he should have remembered nothing about it, because this specimen [illegible] in full summer adult plumage, and no one who had ever shot [illegible] comparatively light grey Gulls (*ridibundus*, *brunnicephalus*, *melanocephalus*, *intermedius*, or even